

NASA'S UNIVERSITY PROGRAM

ACTIVE GRANTS & RESEARCH CONTRACTS

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PROGRAM: ACTIVE GRANTS AND RESEARCH
CONTRACTS, FISCAL YEAR 1976 (National
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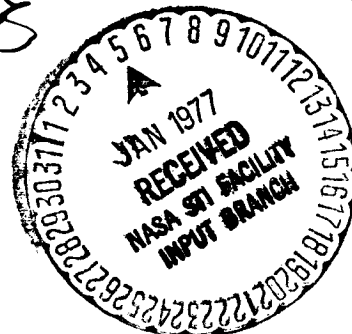
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NASA

National Aeronautics and
Space Administration

Office of University Affairs
Washington, D. C. 20546



FISCAL YEAR 1976

IMPORTANT NOTICE

This report is compiled primarily from information obtained from two internal NASA sources:

1. "CASE Report on Support of Colleges and Universities" (NASA Form 1356).
2. "Individual Procurement Action Report" (NASA Form 507).

Therefore, other sources should be used for completing Forms 507 or 1356.

NASA'S UNIVERSITY PROGRAM
ACTIVE GRANTS AND RESEARCH CONTRACTS
FISCAL YEAR 1976

National Aeronautics and Space Administration
Office of University Affairs
Washington, D.C. 20546

Acknowledgements

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Additional Copies

This publication is available from the National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, Virginia 22161 for \$4.75.

FOREWORD

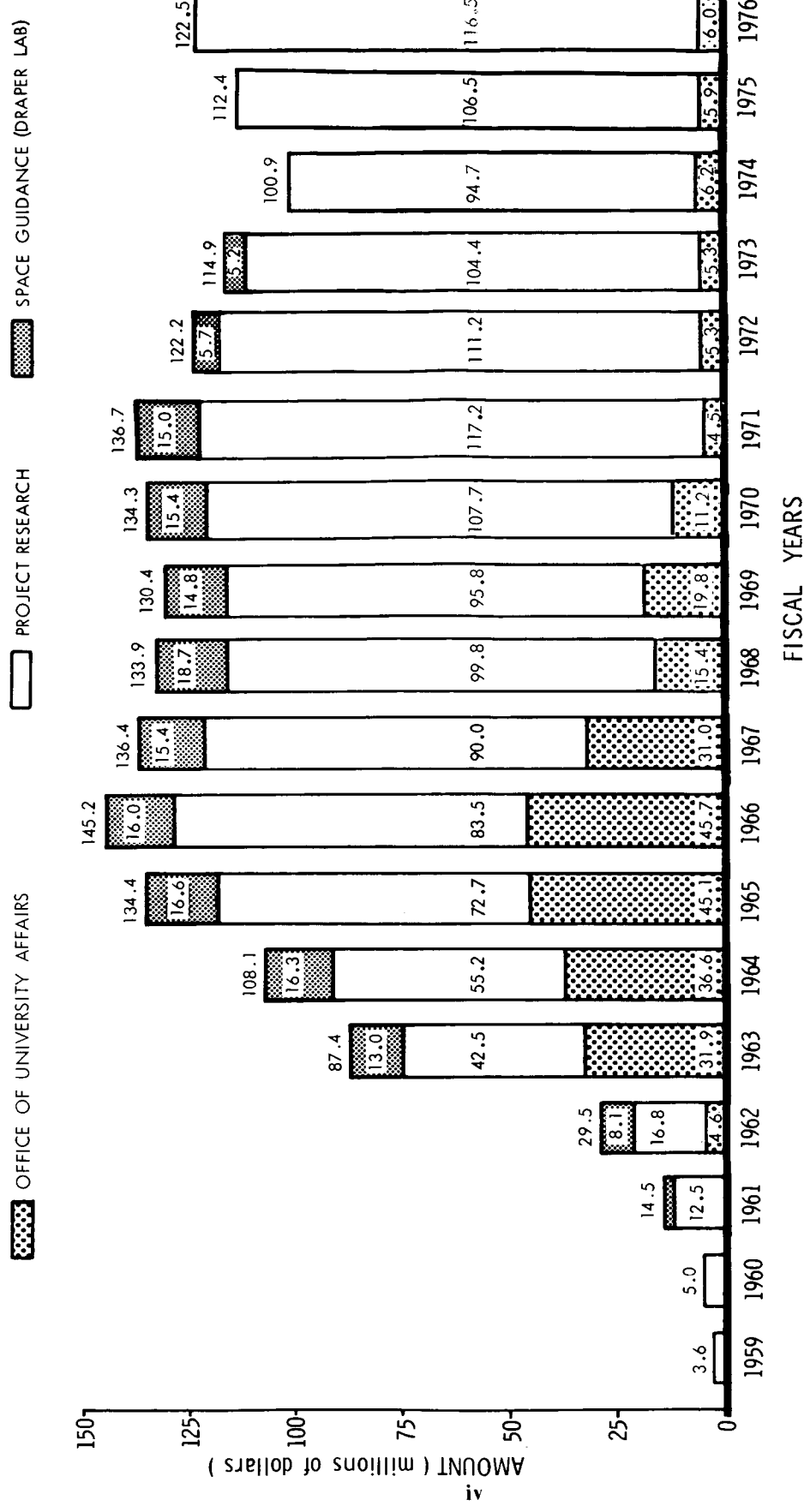
As basic policy NASA believes that colleges and universities should be encouraged to participate in the nation's space and aeronautics program to the maximum extent practicable. Indeed, universities are considered as partners with government and industry in the nation's aerospace program. NASA's objective is to have them bring their scientific, engineering, and social research competence to bear on aerospace problems and on the broader social, economic, and international implications of NASA's technical and scientific programs. It is expected that, in so doing, universities will strengthen both their research and their educational capabilities to contribute more effectively to the national well-being.

NASA Field Centers and certain Headquarters Program Offices provide funds for those R&D activities in universities which contribute to the mission needs of that particular NASA element. Although NASA has no predetermined amount of money to devote to university activities, the effort funded each year is substantial. (See the bar chart on the next page). This annual report is one means of documenting the NASA-university relationship, frequently denoted, collectively, as NASA's University Program.

The Office of University Affairs (OUA) serves as a focal point for NASA's relationships with colleges and universities. One of its roles is to provide information on the NASA University Program. The present document is designed to serve several purposes and a wide range of audiences from private individuals to NASA employees. The emphasis is on the technical content of the program, rather than on fiscal data, which is available separately from OUA. As some terminology will not be familiar to all readers, a "User's Guide" is included to facilitate the fullest use of the material related to the interests of any particular reader.

Information on obtaining reports resulting from these projects may be obtained from: NASA, Scientific and Technical Information Office, Code KS, Washington, DC 20546.

NASA OBLIGATIONS TO UNIVERSITIES



Notes: 1. Excludes obligations to or through Federally Funded Research and Development Centers (JPL, Lincoln Lab., SREL).

2. Change in status from "university" to "non-profit" for three organizations accounts for \$10.1M of the difference between FY 73 and FY 74. (Draper Lab, ERL, Dudley Observatory).

3. Office of University Affairs includes 1962-1971 Sustaining University Program.

Source: NASA Office of University Affairs

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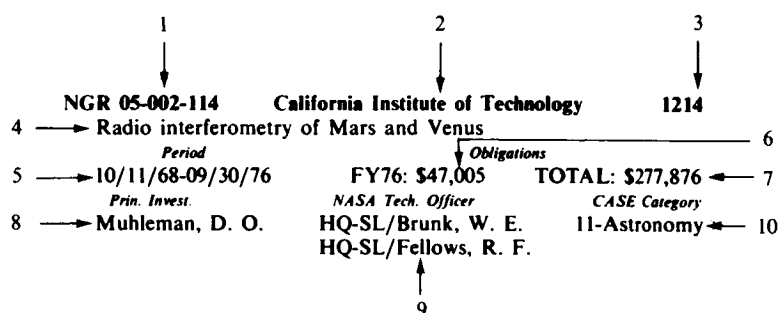
This report includes data on projects active during Fiscal Year 1976.

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USER'S GUIDE

The University Program Report provides current information and related statistics for each grant or research contract active during the report period. The following guidance is provided as an aid to the reader in readily locating material of interest and in optimizing the use of this document.

I. Typical Citation



1. Grant or Contract Number.
2. Institution Name.
3. Accession Number.
4. Brief work description.
5. Approximate period of performance.
6. Amount (if any) actually provided during the indicated fiscal year.
7. Total amount actually provided during the indicated period of performance.
8. Principal Investigator(s) at the educational institution.
9. NASA Technical Officer(s) and organizational location.
10. CASE Field of Science and Engineering code and name.

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II. NASA Installations

NASA installations are included in the citation as abbreviations (item 9). The following listing of installations will be useful to those desiring further information on specific projects.

| Abbrev. | Code | Installation Name and Address | Telephone Number for Information |
|---------|------|---|-------------------------------------|
| ARC | 21 | Ames Research Center NASA Moffett Field, CA 94035 | 415/965-5000 |
| DFRC | 24 | Dryden Flight Research Center NASA P.O. Box 273 Edwards, CA 93523 | 805/258-3311 |
| GSFC | 51 | Goddard Space Flight Center NASA Greenbelt, MD 20771 | 301/982-5042 |
| JPL | 55 | Jet Propulsion Laboratory 4800 Oak Grove Drive Pasadena, CA 91103 | 213/354-4321 |
| JSC | 72 | Johnson Space Center NASA Houston, TX 77058 | 713/483-3111 |
| KSC | 76 | Kennedy Space Center NASA Kennedy Space Center, FL 32899 | 305/867-7113 |
| LARC | 23 | Langley Research Center NASA Langley Station Hampton, VA 23665 | 804/827-1110 |
| LERC | 22 | Lewis Research Center NASA 21000 Brookpark Road Cleveland, OH 44135 | 216/433-4000 |
| MSFC | 62 | Marshall Space Flight Center NASA Marshall Space Flight Center, AL 35812 | 205/453-2121 |
| NSTL | 64 | National Space Technology Laboratories NASA Bay St. Louis, MS 39520 | 601/688-2211 |

| | | | |
|-----|----|--|--------------|
| WFC | 53 | Wallops Flight Center NASA Wallops Island, VA 23337 | 804/824-3411 |
| WTR | -- | Western Launch Operations Division P.O. Box 425 Lompoc, CA 93436 | 805/866-1611 |
| HQ | 10 | NASA Headquarters Washington, DC 20546 | 202/755-2320 |

The abbreviation for NASA Headquarters, HQ, usually carries a suffix, for example HQ-P, which denotes a particular office and general area of responsibility. (P is the Office of University Affairs.) A full listing of the suffix letters and information on NASA's organizational structure may be found in the NASA Headquarters Telephone Directory. (The Directory is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.)

III. CASE Fields of Science and Engineering

The National Science Foundation (NSF) on behalf of the Committee on Academic Science and Engineering (CASE) of the Federal Council for Science and Technology (FCST) operates a government-wide system for collecting and analyzing data on support to colleges and universities. Participating agencies report annually to NSF which in turn issues *Support to Universities, Colleges and Selected Nonprofit Institutions*. The CASE Fields, used in the extensive tabulations contained in that document, form the only consistent classification system for government sponsored research. The fields are listed in full in Appendix B.

IV. Cross-Indexes

The cross-indexed Appendices are related to the citations (descriptions) by the accession number (item 3). The accession number has meaning only in this report; it is in no way permanently associated with nor does it uniquely identify a specific grant or contract anywhere except in the present report. Accession numbers are assigned sequentially to the citations, beginning with 1000. Thus, when an entry of interest is identified in any one of the Appendices, the associated accession number allows ready location of the full description in the body of the report.

Appendix A – Given only the grant or contract number this index enables the reader to locate the citation. The first page tells how to distinguish grants from contracts.

Appendix B – This index provides rapid access to all projects in a particular area of endeavor, as defined by the CASE Fields. This listing is also easily used to determine the institutions and principal investigators conducting NASA projects in a field.

Appendix C – The types of effort sponsored by each NASA installation may be determined from this index.

NASA'S UNIVERSITY PROGRAM

ALABAMA

NAS 9-14770 **Alabama A&M University** **1000**
 Communication system performance evaluation based upon
 pseudonoise testing
Period *Obligations*
 10/20/75-01/31/77 **FY76: \$20,000** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weathers, G. D. JSC/Teasdale, W. E. 45-Elec Engr

NGR 01-001-003 **Alabama A&M University** **1001**
 Radiation effects in the metabolism of phospho-lipids in the central
 nervous system of albino rats
Period *Obligations*
 05/10/65-06/15/76 **FY76:** **TOTAL: \$53,738**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lee, C. O. HQ-P/Pohly, J. G. 59-Life Sci, NEC

NGR 01-001-023 **Alabama A&M University** **1002**
 Development of remote sensing applications for natural resource
 study and management
Period *Obligations*
 06/13/73-06/15/76 **FY76:** **TOTAL: \$81,124**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sharma, G. C. MSFC/Downs, S. W., Jr. 51-Biology

NGR 01-001-025 **Alabama A&M University** **1003**
 Investigation of water quality parameters at selected points on
 Tennessee river
Period *Obligations*
 09/01/73-01/01/76 **FY76:** **TOTAL: \$46,913**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Manger, M. C. MSFC/McDonough, G. F. 39-Env Sci, NEC
 MSFC/Kent, M. I.

NSG 8001 **Alabama A&M University** **1004**
 Application of transition radiations to detect charged particles
 in cosmic rays
Period *Obligations*
 01/02/74-04/01/78 **FY76:** **TOTAL: \$16,818**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 George, M. C. MSFC/Parnell, T. A. 11-Astronomy
 MSFC/Kent, M. I.

NSG 8011 **Alabama A&M University** **1005**
 Application of self-induced transparency and self-trapping to
 reduce the degradation of laser pulses
Period *Obligations*
 07/01/74-10/01/75 **FY76:** **TOTAL: \$19,644**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lee, C. T. MSFC/Kurtz, R. L. 13-Physics
 MSFC/Kent, M. I.

NSG 8013 **Alabama A&M University** **1006**
 Performance analysis and design study for a proposed HEAO
 tracking and data relay satellite data communications link
Period *Obligations*
 07/01/74-10/01/75 **FY76:** **TOTAL: \$24,118**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weather, G. D. MSFC/Lowrey, D. O. 45-Elec Engr

NSG 8022 **Alabama A&M University** **1007**
 Rocket engine thrust chamber wall temperature distribution
 calculation and analysis
Period *Obligations*
 10/17/74-04/30/76 **FY76:** **TOTAL: \$23,554**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Saha, H. MSFC/Gross, K. W. 13-Physics
 MSFC/Kent, M. I.

NSG 8033 **Alabama A&M University** **1008**
 The study of crystals for space processing and the effects of
 0-gravity
Period *Obligations*
 01/15/76-01/14/77 **FY76: \$24,254** **TOTAL: \$24,254**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lal, R. B. MSFC/Bannister, T. C. 13-Physics
 MSFC/Kent, M. I.

NSG 8037 **Alabama A&M University** **1009**
 Atmospheric effects on coherent laser systems
Period *Obligations*
 06/01/76-06/01/77 **FY76: \$20,486** **TOTAL: \$20,486**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Murty, S. S. MSFC/Jeffreys, H. B. 13-Physics
 MSFC/Kent, M. I.

NSG 8041 **Alabama A&M University** **1010**
 Parametric study of rock pile thermal storage for solar heating
Period *Obligations*
 06/01/76-06/01/77 **FY76: \$36,056** **TOTAL: \$36,056**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Saha, H. MSFC/Humphries, W. R. 46-Mech Engr
 MSFC/Kent, M. I.

NAS 8-28058 **Athens College** **1011**
 Chemical analysis of outgassing contaminant on spacecraft
 surfaces
Period *Obligations*
 10/27/71-10/06/76 **FY76: \$13,872** **TOTAL: \$93,697**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McNutt, R. C. MSFC/Jex, D. W. 13-Physics
 MSFC/Kroes, R. L.

NAS 8-30561 **Athens College** **1012**
 Solidification kinetics
Period *Obligations*
 06/25/74-09/25/75 **FY76:** **TOTAL: \$22,067**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McNutt, R. C. MSFC/Zwiener, J. M. 13-Physics
 Short, W. A. MSFC/Ruff, R. C.

NASA'S UNIVERSITY PROGRAM

ALABAMA (Continued)

NAS 8-30880 **Athens College** **1013**
Determination of exploratory loading techniques for holographic non-destructive testing

| Period | Obligations | |
|--------------------|------------------------|-----------------|
| 07/01/74-09/30/76 | FY76: \$5,040 | TOTAL: \$21,102 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Martin, A. M., III | MSFC/Moore, W. W., Jr. | 13-Physics |
| | MSFC/Owens, R. B. | |

NAS 8-30248 **Auburn University** **1020**
Terminal guidance and navigation for comet and asteroid rendezvous

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 12/16/73-06/15/75 | FY76: | TOTAL: \$25,656 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bennett, A. G. | MSFC/Duncan, J. R., Jr. | 41-Aero Engr |
| | MSFC/Blair, J. C. | |

NAS 8-31731 **Athens College** **1014**
Vapor transport mechanisms

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 10/08/75-10/07/76 | FY76: \$25,000 | TOTAL: \$25,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Workman, G. L. | MSFC/Arnett, G. M. | 12-Chemistry |
| | MSFC/Davidson, M. C. | |

NAS 8-30654 **Auburn University** **1021**
Development of Alabama resources information management system

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 04/23/74-09/15/76 | FY76: \$10,092 | TOTAL: \$71,592 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vachon, R. I. | MSFC/Cummings, R. E. | 21-Mathematics |
| Herring, B. E. | MSFC/Messer, C. | |

NAS 8-20765 **Auburn University** **1015**
Frequency Modulated (FM) telemetry systems

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/22/67-06/15/74 | FY76: | TOTAL: \$232,170 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Irwin, J. D. | MSFC/Emens, F. H. | 45-Elec Engr |
| James, S. | | |

NAS 8-31190 **Auburn University** **1022**
Development of automated test procedures and techniques for LSI circuits

| Period | Obligations | |
|-------------------|---------------------|----------------|
| 10/10/74-07/10/75 | FY76: | TOTAL: \$6,861 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carroll, B. D. | MSFC/Gould, J. M. | 45-Elec Engr |
| | MSFC/Juergensen, K. | |

NAS 8-26930 **Auburn University** **1016**
Advanced computer system studies and development

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/29/71-10/15/76 | FY76: | TOTAL: \$71,225 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carroll, B. D. | MSFC/White, J. B. | 45-Elec Engr |
| Irwin, J. D. | | |

NAS 8-31223 **Auburn University** **1023**
Optical data processing study

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/04/75-10/04/76 | FY76: | TOTAL: \$14,231 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pinson, L. J. | MSFC/Keer, J. H. | 45-Elec Engr |
| | MSFC/Smith, H. F. | |

NAS 8-29852 **Auburn University** **1017**
Investigation of problems involving calculation of space tug's position in an inertial coordinate system

| Period | Obligations | |
|--------------------|-----------------------|-----------------|
| 06/20/73-11/19/75 | FY76: | TOTAL: \$74,394 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Boland, J. S., III | MSFC/Craighead, P. T. | 49-Engr, NEC |
| | MSFC/Singley, M. E. | |

NAS 8-31572 **Auburn University** **1024**
Design, processing and test of large scale integrated circuit arrays

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 12/01/75-11/30/76 | FY76: \$11,148 | TOTAL: \$11,148 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carroll, B. D. | MSFC/Matheney, J. L. | 45-Elec Engr |
| | MSFC/Gould, J. | |

NAS 8-29856 **Auburn University** **1018**
Detection of soil acidity

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 07/01/73-12/31/76 | FY76: \$10,000 | TOTAL: \$54,900 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hagler, T. B. | MSFC/Downs, S. W., Jr. | 51-Biology |
| | MSFC/Paludan, C. T. | |

NCA 8-106 **Auburn University** **1025**
Study of solid propellant rocket motor internal ballistic performance variation

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 01/22/75-07/22/75 | FY76: | TOTAL: \$21,590 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sforzini, R. H. | MSFC/Shackelford, B. W. | 12-Chemistry |

NAS 8-29881 **Auburn University** **1019**
Econometric analysis of materials processing in space

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 03/12/74-09/15/75 | FY76: | TOTAL: \$73,170 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vachon, R. I. | MSFC/McKannan, E. C. | 72-Economics |
| | MSFC/Wheeler, J. | |

NCA 8-108 **Auburn University** **1026**
An analysis of solid rocket motor thrust imbalance

| Period | Obligations | |
|-------------------|-------------------------|----------------|
| 01/22/75-07/22/75 | FY76: | TOTAL: \$1,259 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sforzini, R. H. | MSFC/Shackelford, B. W. | 43-Chem Engr |

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NCA 8-109 Auburn University 1027
Application of aerospace technology to the mathematical and statistical characterization of railbed and highway geometrics
Period *Obligations*
06/20/75-12/20/75 FY76: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bell, L. MSFC/Cook, L. J. 21-Mathematics

NCA 8-120 Auburn University 1028
Solid propellant rocket motor internal ballistic performance variation
Period *Obligations*
10/28/75-06/30/76 FY76: \$24,000 TOTAL: \$24,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sforzini, R. H. MSFC/Shackleford, B. W.43-Chem Engr

NCA 8-124 Auburn University 1029
Research and study of solid propellant rocket motor internal ballistic performance variation
Period *Obligations*
05/05/76-09/29/76 FY76: \$8,000 TOTAL: \$8,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sforzini, R. H. MSFC/Shackleford, B. W.43-Chem Engr

NGT 01-003-044 Auburn University 1030
Summer fellowship programs in engineering systems design
Period *Obligations*
12/16/69-03/31/76 FY76: TOTAL: \$719,236
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vachon, R. I. HQ-P/Carter, C. H. 49-Engr, NEC

NGT 01-003-045 Auburn University 1031
Summer faculty fellowship program in aeronautics and space research
Period *Obligations*
12/16/69-03/31/75 FY76: TOTAL: \$341,562
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'Brien, J. F. HQ-P/Carter, C. H. 49-Engr, NEC

NSG 3109 Auburn University 1032
Techniques for determining stresses in rotating turbine or compressor blades
Period *Obligations*
09/01/76-09/01/77 FY76: \$38,842 TOTAL: \$38,842
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ranson, W. F. LERC/Decker, A. J. 49-Engr, NEC
Swinson, W. F.

NSG 8017 Oakwood College 1033
Inhibitory effects of tocopherol (vitamin E) on free radical deterioration of cellular membranes
Period *Obligations*
09/20/74-10/30/75 FY76: TOTAL: \$18,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Richardson, D. MSFC/Kent, M. I. 12-Chemistry

NGR 01-007-009 Talladega College 1034
Far infrared lattice properties of gallium arsenide
Period *Obligations*
01/01/74-03/14/77 FY76: \$22,791 TOTAL: \$80,450
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Breecher, J. MSFC/Dalins, I. 13-Physics
MSFC/Kent, M. I.

NAS 9-13844 Tuskegee Institute 1035
Analytical investigation of the heat-pipe radiator as a spacecraft heat rejection system
Period *Obligations*
01/01/74-08/31/76 FY76: \$15,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sellers, J. P. JSC/French, B. O. 46-Mech Engr

NCA 2-810601 Tuskegee Institute 1036
Scanning and transmission electron microscopy
Period *Obligations*
04/09/76-04/08/77 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sapp, W. J. ARC/Philpott, D. E. 13-Physics

NGT 01-005-750 Tuskegee Institute 1037
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/75-05/31/77 FY76: \$14,000 TOTAL: \$28,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dybczak, Z. W. HQ-P/Pohly, J. G. 49-Engr, NEC
HQ-U/Jenkins, H. G.

NSG 8003 Tuskegee Institute 1038
Investigation of effects of corona and electrical discharges on degradation of insulation materials
Period *Obligations*
02/01/74-08/01/76 FY76: TOTAL: \$53,886
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doreswamy, C. V. MSFC/Crowell, C. S. 45-Elec Engr
MSFC/Kent, M. I.

NSG 8038 Tuskegee Institute 1039
Investigation of electrical breakdown characteristics and stability of insulating materials used on solar cells (photovoltaic converters)
Period *Obligations*
08/01/76-07/31/77 FY76: \$25,693 TOTAL: \$25,693
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doreswamy, C. V. MSFC/Young, L. E. 45-Elec Engr
MSFC/Kent, M. I.

NGR 01-010-001 University of Alabama - Birmingham 1040
Model for origin and coevolution of genetic code and the process of protein synthesis
Period *Obligations*
05/09/73-05/30/77 FY76: \$50,646 TOTAL: \$123,196
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lacey, J. C., Jr. HQ-SB/Young, R. S. 12-Chemistry

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NAS 8-24908 **University of Alabama - Huntsville** **1041**
 Study of radiation environment in orbit of the Apollo applications satellites
Period *Obligations*
 06/24/69-10/31/75 FY76: TOTAL: \$195,278
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hiser, H. W. MSFC/Parnell, T. A. 11-Astronomy

NAS 8-24953 **University of Alabama - Huntsville** **1042**
 Study of specific light output of CSI crystals
Period *Obligations*
 06/26/69-12/31/76 FY76: \$24,000 TOTAL: \$373,852
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gregory, J. C. MSFC/Parnell, T. A. 13-Physics
 MSFC/Fishman, G. J.

NAS 8-27809 **University of Alabama - Huntsville** **1043**
 Superconducting compounds & alloys
Period *Obligations*
 06/29/71-10/31/75 FY76: TOTAL: \$127,191
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Otto, G. H. MSFC/Lacy, L. L. 47-Materials Engr
 MSFC/Urban, E. W.

NAS 8-28097 **University of Alabama - Huntsville** **1044**
 Triggering mechanisms for solar flares
Period *Obligations*
 12/06/71-07/31/77 FY76: \$255,000 TOTAL: \$380,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wu, S. T. MSFC/Hagyard, M. J. 13-Physics
 MSFC/Wilson, R. M.

NAS 8-28248 **University of Alabama - Huntsville** **1045**
 Environmental dynamics at orbital altitudes
Period *Obligations*
 01/24/72-06/30/76 FY76: TOTAL: \$104,332
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hermann, R. MSFC/Swenson, G. R. 42-Astro Engr
 MSFC/Smith, R. E.

NAS 8-28304 **University of Alabama - Huntsville** **1046**
 Skylab experiment on growth of spherical crystals
Period *Obligations*
 09/19/72-06/30/76 FY76: \$55,000 TOTAL: \$147,547
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Walter, H. U. MSFC/Adams, W. R. 19-Phys Sci, NEC
 MSFC/Bannister, T. C.

NAS 8-29316 **University of Alabama - Huntsville** **1047**
 Working model of the London Moment Readout System
Period *Obligations*
 10/06/72-11/30/76 FY76: \$71,110 TOTAL: \$310,351
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hendricks, J. B. MSFC/Urban, E. W. 99-Multi-Discip
 Karr, G. R. MSFC/Decher, R.

NAS 8-29543 **University of Alabama - Huntsville** **1048**
 Airglow research
Period *Obligations*
 02/01/73-05/31/75 FY76: TOTAL: \$31,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wu, S. T. MSFC/Swenson, G. R. 13-Physics

NAS 8-30247 **University of Alabama - Huntsville** **1049**
 Review, study, and evaluation of possible flight experiments relating to cloud physics experiments in space
Period *Obligations*
 11/01/73-10/31/76 FY76: TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hung, R. J. MSFC/Smith, R. E. 31-Atmos Sci
 MSFC/Vaughan, W. W.

NAS 8-30563 **University of Alabama - Huntsville** **1050**
 Study of magnetospheric and laboratory plasma physics experiments
Period *Obligations*
 09/01/74-10/30/76 FY76: \$30,000 TOTAL: \$78,796
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smalley, L. L. MSFC/Chappell, C. R. 13-Physics
 MSFC/Burch, J. L.

NAS 8-30772 **University of Alabama - Huntsville** **1051**
 Study on the environmental parameters of the Tennessee River
Period *Obligations*
 05/16/74-01/31/76 FY76: TOTAL: \$24,761
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rossing, L. M. MSFC/Morton, R. R. 51-Biology
 MSFC/Hamby, H. G.

NAS 8-30774 **University of Alabama - Huntsville** **1052**
 Study on space processing of crystalline materials
Period *Obligations*
 09/01/74-05/31/75 FY76: TOTAL: \$9,862
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Castle, J. G., Jr. MSFC/Zwiener, J. M. 47-Materials Engr

NAS 8-30885 **University of Alabama - Huntsville** **1053**
 Demonstrate the feasibility of the mirads for the retrieval of air pollution data
Period *Obligations*
 06/26/74-06/29/75 FY76: TOTAL: \$14,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schroer, B. J. MSFC/Gravette, M. C. 39-Env Sci, NEC
 MSFC/Gibbons, J. D.

NAS 8-31169 **University of Alabama - Huntsville** **1054**
 Earth resources data acquisition sensor study
Period *Obligations*
 12/01/74-08/06/75 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Grohse, E. W. MSFC/Morton, R. R. 44-Civil Engr
 MSFC/Hamby, H. G.

NASA'S UNIVERSITY PROGRAM
ALABAMA (Continued)

NAS 8-31170 **University of Alabama - Huntsville** **1055**
Study of efficient low power diffractometer designs
Period *Obligations*
01/15/75-10/15/76 FY76: \$28,399 TOTAL: \$48,391
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregory, J. C. MSFC/Parnell, T. A. 13-Physics
MSFC/Chisholm, W. L.

NAS 8-31729 **University of Alabama - Huntsville** **1062**
Numerical simulation of warm fogs
Period *Obligations*
11/05/75-11/04/76 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hung, R. J. MSFC/Vaughan, O. H. 13-Physics
MSFC/Anderson, B. J.

NAS 8-31171 **University of Alabama - Huntsville** **1056**
Study of internal wave motions on the neutral atmosphere
Period *Obligations*
02/14/75-09/30/77 FY76: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hung, R. J. MSFC/West, G. S., Jr. 39-Env Sci, NEC
MSFC/Hill, C. K.

NAS 8-31768 **University of Alabama - Huntsville** **1063**
Low gravity processing of super conducting compounds
Period *Obligations*
12/15/75-06/15/76 FY76: \$18,000 TOTAL: \$18,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Otto, G. H. MSFC/Lacy, L. L. 46-Mech Engr
MSFC/Yates, I. C., Jr.

NAS 8-31174 **University of Alabama - Huntsville** **1057**
Contract for integrated real time contamination monitor
Period *Obligations*
03/11/75-05/10/76 FY76: TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Luttges, W. E. MSFC/Detko, G. J. 19-Phys Sci, NEC
MSFC/Loughead, A. G.

NAS 8-31895 **University of Alabama - Huntsville** **1064**
Investigations in cosmic ray and gamma ray astronomy and nuclear instruments
Period *Obligations*
03/19/76-01/18/77 FY76: \$19,000 TOTAL: \$19,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gregory, J. C. MSFC/Fishman, G. J. 13-Physics
Meggan, C. MSFC/Parnell, T. A.
Lig, S. E.

NAS 8-31194 **University of Alabama - Huntsville** **1058**
Earth and ocean modeling
Period *Obligations*
12/01/74-01/16/77 FY76: TOTAL: \$90,919
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knezovich, F. M. MSFC/Teuber, D. L. 13-Physics
MSFC/Lundquist, C. A.

NGL 01-008-001 **University of Alabama - Huntsville** **1065**
Research in aerospace physical sciences and engineering
Period *Obligations*
09/17/69-05/31/76 FY76: TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rush, J. E. HQ-P/Carter, C. H. 99-Multi-Discip
MSFC

NAS 8-31293 **University of Alabama - Huntsville** **1059**
Solar heating and cooling technical data and systems analysis
Period *Obligations*
11/07/74-09/30/76 FY76: \$116,446 TOTAL: \$156,444
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Christensen, D. MSFC/Bowden, D. R. 13-Physics

NGR 01-008-015 **University of Alabama - Huntsville** **1066**
Effects of solar flare ionization on terrestrial ionosphere
Period *Obligations*
11/30/73-04/30/76 FY76: \$9,355 TOTAL: \$24,544
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rao, G. L. HQ-ST/Timothy, A. F. 11-Astronomy

NAS 8-31321 **University of Alabama - Huntsville** **1060**
Cloud physics laboratory project, science and applications working group
Period *Obligations*
12/20/74-09/30/77 FY76: TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hung, R. J. MSFC/Smith, R. E. 31-Atmos Sci
MSFC/Hill, C. K.

NGT 01-008-021 **University of Alabama - Huntsville** **1067**
Summer faculty fellowship program
Period *Obligations*
01/01/76-03/31/77 FY76: \$104,525 TOTAL: \$104,525
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Head, R. R. HQ-P/Carter, C. H. 49-Engr, NEC

NAS 8-31345 **University of Alabama - Huntsville** **1061**
Water resources and stream contamination study
Period *Obligations*
04/01/75-04/30/77 FY76: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doyle, L. MSFC/Bensko, J. 32-Geological Sci
MSFC/Hamby, H. G.

NSG 2058 **University of Alabama - Huntsville** **1068**
Development of an isolation research model and paradigm
Period *Obligations*
12/15/74-05/31/77 FY76: \$40,000 TOTAL: \$90,201
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rogers, J. G. ARC/Tanner, T. A. 69-Psych, NEC
Sullins, W. R., Jr.

NASA'S UNIVERSITY PROGRAM

ALABAMA (Continued)

NAS 8-20172 **University of Alabama - Tuscaloosa** **1069**
Study and analysis of the FM/FM and SS/FM telemetry systems for the Saturn vehicle

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 06/10/65-07/30/74 | FY76: TOTAL: \$529,545 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Houts, R. C. | MSFC/Emens, F. H. | 45-Elec Engr |

NAS 8-25562 **University of Alabama - Tuscaloosa** **1070**
The study of the effects of atmospheric turbulence on laser communication system

| Period | Obligations | |
|-------------------|-----------------------|---------------|
| 03/03/70-12/31/74 | FY76: TOTAL: \$95,601 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Webb, W. E. | MSFC/Randall, J. L. | 31-Atmos Sci |

NAS 8-28098 **University of Alabama - Tuscaloosa** **1071**
Crystal growth

| Period | Obligations | |
|-------------------|-----------------------|---------------|
| 12/02/71-08/12/75 | FY76: TOTAL: \$99,803 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Miyagawa, I. | MSFC/Bannister, T. C. | 13-Physics |
| | MSFC/Facemire, B. R. | |

NAS 8-29100 **University of Alabama - Tuscaloosa** **1072**
Water resources planning for rivers draining into mobile bay

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 07/01/73-09/30/76 | FY76: \$15,000 TOTAL: \$64,980 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| April, G. C. | MSFC/Morton, R. R. | 49-Engr, NEC |
| Hill, D. O. | MSFC/Paludan, C. T. | |

NAS 8-29494 **University of Alabama - Tuscaloosa** **1073**
Study-experiment analysis and ground base test programs for a single crystal growth project

| Period | Obligations | |
|-------------------|-----------------------|---------------|
| 01/29/73-09/30/74 | FY76: TOTAL: \$14,102 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| De Smet, D. J. | MSFC/Schafer, C. F. | 13-Physics |
| | MSFC/Davidson, M. C. | |

NAS 8-29936 **University of Alabama - Tuscaloosa** **1074**
Assessment of practicality of remote sensing techniques for study of effects of strip mining in Alabama

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 06/08/73-06/30/75 | FY76: TOTAL: \$32,651 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hughes, T. H. | MSFC/Bensko, J. | 32-Geological Sci |
| | MSFC/Jones, R. E. | |

NAS 8-29937 **University of Alabama - Tuscaloosa** **1075**
Use of remote sensing techniques for geological hazard surveys in vegetated urban regions

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 06/08/73-06/30/76 | FY76: TCTAL: \$49,996 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stow, S. H. | MSFC/Bensko, J. | 32-Geological Sci |

NAS 8-30479 **University of Alabama - Tuscaloosa** **1076**
Evaluation of composite mobile holographic nondestructive test system

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 12/28/73-05/27/76 | FY76: TOTAL: \$31,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liu, H. K. | MSFC/Moore, W. W., Jr. | 13-Physics |
| | MSFC/Kurtz, R. L. | |

NAS 8-30624 **University of Alabama - Tuscaloosa** **1077**
Plume induced flow separation in unsteady aerodynamics

| Period | Obligations | |
|-------------------|---------------------------|---------------|
| 05/13/74-08/15/76 | FY76: TOTAL: \$50,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Doughty, J. O. | MSFC/Schutzenhofer, L. A. | 46-Mech Engr |
| | MSFC/Jones, J. H. | |

NAS 8-30886 **University of Alabama - Tuscaloosa** **1078**
Computer model simulation of the effects of electromagnetic interference

| Period | Obligations | |
|-------------------|----------------------|----------------|
| 07/15/74-09/01/74 | FY76: TOTAL: \$3,978 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ainsworth, O. R. | MSFC/Digesu, F. E. | 21-Mathematics |

NAS 8-31343 **University of Alabama - Tuscaloosa** **1079**
Reduction and analysis of data from an integrating TV system

| Period | Obligations | |
|-------------------|----------------------|---------------|
| 02/01/75-01/31/76 | FY76: TOTAL: \$8,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Fay, T. D. | MSFC/Miller, E. R. | 11-Astronomy |
| | MSFC/Duncan, B. J. | |

NAS 8-31979 **University of Alabama - Tuscaloosa** **1080**
Remote sensing workshop

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 06/01/76-06/01/77 | FY76: \$10,150 TOTAL: \$10,150 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hughes, T. | MSFC/Bensko, J. | 13-Physics |
| | MSFC/Paludan, C. T. | |

NGT 01-002-080 **University of Alabama - Tuscaloosa** **1081**
Summer faculty fellowship program

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 01/14/71-12/31/76 | FY76: TOTAL: \$313,359 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Barfield, B. F. | HQ-P/Carter, C. H. | 49-Engr, NEC |

NSG 3003 **University of South Alabama** **1082**
Laser Doppler spectrometer method of particle sizing

| Period | Obligations | |
|-------------------|----------------------|---------------|
| 06/15/74-06/15/76 | FY76: TOTAL: \$9,744 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Weber, F. N., Jr. | LERC/Fordyce, J. S. | 13-Physics |

NASA'S UNIVERSITY PROGRAM ALASKA

ALASKA

NAS 5-20803 **University of Alaska - Fairbanks** **1083**
ERTS follow-on investigation

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 01/21/75-11/21/76 | FY76: | TOTAL: \$50,397 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gedney, L. | GSFC/Broderick, J. C. | 32-Geological Sci |

NAS 5-20915 **University of Alaska - Fairbanks** **1084**
Analysis of data for ERTS follow-on investigation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/04/75-02/04/77 | FY76: | TOTAL: \$66,325 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lent, P. | GSFC/Oseroff, H. | 39-Env Sci, NEC |

NAS 5-20959 **University of Alaska - Fairbanks** **1085**
Analysis of ERTS data follow-on investigation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/24/75-11/24/76 | FY76: | TOTAL: \$28,337 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stringer, W. | GSFC/Crump, E. | 33-Oceanography |

NAS 5-21833 **University of Alaska - Fairbanks** **1086**
ERTS data user investigations

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 09/13/72-07/30/75 | FY76: | TOTAL: \$469,321 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Belon, A. E. | GSFC/Crump, E. W. | 31-Atmos Sci |

NAS 8-31801 **University of Alaska - Fairbanks** **1087**
Uses of electron beams for atmospheric science and preparations for large vacuum tests

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 01/13/76-07/12/76 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Davis, T. N. | MSFC/Roberts, W. T. | 19-Phys Sci, NEC |

NAS 9-13945 **University of Alaska - Fairbanks** **1088**
Apollo/Soyuz test project experiment MA-017-barium cloud

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 01/21/74-07/31/76 | FY76: | TOTAL: \$117,509 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wescott, E. M. | JSC/Baldwin, R. R. | 32-Geological Sci |
| Davis, R. N. | | |

NGL 02-001-092 **University of Alaska - Fairbanks** **1089**
Application of remote sensing data to surveys of the Alaskan environment

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 07/26/72-06/30/78 | FY76: \$100,000 | TOTAL: \$475,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Miller, J. M. | HQ-P/Vitale, J. A. | 39-Env Sci, NEC |
| Belon, A. E. | | |

NGR 02-001-087 **University of Alaska - Fairbanks** **1090**
Measurement of electric fields in a rayed auroral arc

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 03/02/72-01/31/76 | FY76: | TOTAL: \$425,417 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Davis, T. N. | HQ-ST/Schmerling, E. R. | 13-Physics |
| | HQ-SA/Logan, W. | |

NSG 2053 **University of Alaska - Fairbanks** **1091**
Design, program planning and operator training for the 1975 NASA/ESA CV-990 assess mission

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 11/15/74-10/15/76 | FY76: \$20,000 | TOTAL: \$67,915 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sivjee, G. G. | ARC/Haughney, L. C. | 31-Atmos Sci |
| Romick, G. J. | ARC/Neel, C. B. | |

NSG 7051 **University of Alaska - Fairbanks** **1092**
Study of the relationship between the ring current and magnetosphere substorms

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 01/01/74-12/31/75 | FY76: \$7,500 | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Akasofu, S. I. | HQ-ST/Schmerling, E. R. | 13-Physics |

ARIZONA

NCA 2-35601 **Arizona State University** **1093**
Synthesis of optically active polymers

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 04/01/76-09/30/76 | FY76: \$5,000 | TOTAL: \$5,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Yuen, G. U. | ARC/Zill, L. P. | 12-Chemistry |

NCA 2-35602 **Arizona State University** **1094**
A geological analysis of Martian terrain

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 05/01/76-09/30/76 | FY76: \$4,370 | TOTAL: \$4,370 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Moore, C. B. | ARC/Bunch, T. | 32-Geological Sci |

NGL 03-001-001 **Arizona State University** **1095**
Development of improved procedures for sampling, characterizing & classifying meteorite specimens

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 04/16/63-02/28/79 | FY76: \$24,956 | TOTAL: \$306,323 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Moore, C. B. | HQ-SL/French, B. M. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NASA'S UNIVERSITY PROGRAM

ARIZONA (Continued)

NSG 3075 **Arizona State University** **1096**
Study of multiple jet array impingement heat transfer characteristics
Period *Obligations*
09/01/75-05/31/77 FY76: \$75,000 TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Metzger, D. E. LERC/Gaunter, J. W. 41-Aero Engr
Florschuetz, L. W. LERC/Colladay, R. S.

NSG 7019 **Arizona State University** **1097**
Work function evaluation of iron-nickel alloys and other metals for low temperature thermionic energy converters
Period *Obligations*
01/01/74-04/30/77 FY76: \$20,000 TOTAL: \$35,543
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jacobson, D. L. LERC/Morris, J. F. 13-Physics

NSG 7040 **Arizona State University** **1098**
A data synthesis proposal to explain the chemical composition of the moon
Period *Obligations*
04/01/74-02/28/77 FY76: \$40,268 TOTAL: \$102,711
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Larimer, J. W. HQ-SL/Williams, R. J. 32-Geological Sci
Moore, C. B. HQ-SL/Flinn, E. A.

NSG 7217 **Arizona State University** **1099**
Cobalt as an analog for ferrous iron
Period *Obligations*
03/01/76-02/28/77 FY76: \$17,406 TOTAL: \$17,406
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holloway, J. R. HQ-SL/Williams, R. J. 32-Geological Sci
HQ-SL/Flinn, E. A.

NSG 7182 **Northern Arizona University** **1100**
Geological studies in planetology eolian deposits and dune morphology on the Navajo reservation
Period *Obligations*
09/07/75-09/06/76 FY76: \$3,000 TOTAL: \$3,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cotera, A. S. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NAS 1-14332 **University of Arizona** **1101**
Stratospheric aerosol measurement experiment
Period *Obligations*
03/19/76-10/31/77 FY76: \$12,000 TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herman, B. M. LARC/McCormick, M. P. 31-Atmos Sci
LARC/McMaster, L. R.

NAS 2-6265 **University of Arizona** **1102**
IPP software & display system
Period *Obligations*
11/01/70-01/31/77 FY76: \$172,640 TOTAL: \$1,255,907
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gehrels, A. M. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-7839 **University of Arizona** **1103**
Pioneer F/G data analysis of shock waves
Period *Obligations*
10/01/73-06/30/76 FY76: \$21,727 TOTAL: \$61,108
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sonett, C. P. ARC/Hall, C. F. 13-Physics

NAS 2-8818 **University of Arizona** **1104**
Pioneer/Venus design and development of solar flux radiometer
Period *Obligations*
06/21/75-08/31/78 FY76: \$270,000 TOTAL: \$275,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tomasko, M. G. ARC/Hall, C. F. 31-Atmos Sci
Wolfe, W. ARC/Yee, L.

NAS 5-22599 **University of Arizona** **1105**
Cryogenics study
Period *Obligations*
02/09/76-12/09/76 FY76: \$23,053 TOTAL: \$23,053
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Low, F. J. GSFC/Hymowitz, E. W. 11-Astronomy

NAS 5-23176 **University of Arizona** **1106**
Phase C/D for HECRE-HEAO-A
Period *Obligations*
12/01/72-07/01/76 FY76: TOTAL: \$29,770
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowen, T. GSFC/Browning, R. K. 11-Astronomy
Delise, D. A.

NAS 8-28661 **University of Arizona** **1107**
Measurement of dimensional stability
Period *Obligations*
06/06/72-06/05/75 FY76: TOTAL: \$93,456
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jacobs, S. F. MSFC/Kurtz, R. L. 13-Physics
MSFC/Moore, W. W., Jr.

NAS 8-29566 **University of Arizona** **1108**
Role of gravity in preparative electrophoresis
Period *Obligations*
02/01/73-11/19/76 FY76: \$59,997 TOTAL: \$284,884
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bier, M. MSFC/Allen, R. E. 13-Physics
MSFC/Snyder, R. S.

NAS 8-31192 **University of Arizona** **1109**
Maintenance and operation of the 60' NASA telescope at Mt Lemmon
Period *Obligations*
10/01/74-09/30/76 FY76: \$50,455 TOTAL: \$106,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sonett, C. P. MSFC/Miller, E. R. 11-Astronomy
MSFC/Lundquist, C. A.

NASA'S UNIVERSITY PROGRAM
ARIZONA (Continued)

NCA 5-38 **University of Arizona** **1124**
 Propellant rocket motors
Period *Obligations*
 11/26/74-04/30/75 FY76: TOTAL: \$7,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burke, J. J. GSFC/Maran, S. P. 19-Phys Sci, NEC

NCA 5-39 **University of Arizona** **1125**
 Research task under GSFC/Univ of Arizona master agreement
 work statement No.8
Period *Obligations*
 11/25/74-08/01/75 FY76: TOTAL: \$3,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Epps, H. W. GSFC/Maran, S. P. 19-Phys Sci, NEC

NCA 5-47 **University of Arizona** **1126**
 Infrared absorption studies of ice
Period *Obligations*
 05/07/75-12/31/75 FY76: TOTAL: \$10,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fink, U. W. GSFC/Pearl, J. C. 11-Astronomy

NCA 5-62 **University of Arizona** **1127**
 Observations of comets, atmospheric extinction and image
 intensifier research and application
Period *Obligations*
 04/27/76-06/01/77 FY76: \$6,000 TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sonett, C. P. GSFC/Maran, S. P. 11-Astronomy

NGL 03-002-002 **University of Arizona** **1128**
 Planetary, spectroscopic, selenodetic & physical studies of lunar
 surface
Period *Obligations*
 08/12/61-05/31/78 FY76: \$96,390 TOTAL: \$2,515,850
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sonett, C. P. HQ-SL/Brunk, W. E. 11-Astronomy
 HQ-SL/Fellows, R. F.

NGL 03-002-006 **University of Arizona** **1129**
 Application of modern automatic control theory to nuclear rocket
 dynamics & control
Period *Obligations*
 06/28/63-06/01/74 FY76: TOTAL: \$437,819
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schultz, D. G. HQ-NS/Schwenk, F. C. 45-Elec Engr
 HQ-NS/Hintze, A. S.

NGL 03-002-017 **University of Arizona** **1130**
 Operation of MV van de Graaff accelerator for basic experiments
 in atomic optical spectroscopy
Period *Obligations*
 05/21/64-10/31/77 FY76: TOTAL: \$1,005,061
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bashkin, S. HQ-SA/Roman, N. G. 11-Astronomy

NGL 03-002-019 **University of Arizona** **1131**
 High resolution electron microscopic techniques to study biological
 material
Period *Obligations*
 06/07/63-08/31/78 FY76: \$30,000 TOTAL: \$441,055
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hoenig, S. A. HQ-SL/Fellows, R. F. 31-Atmos Sci
 HQ-SL/Brunk, W. E.

NGL 03-002-032 **University of Arizona** **1132**
 Large optical telescope systems suitable for use with manned
 space systems
Period *Obligations*
 08/05/64-09/30/76 FY76: TOTAL: \$746,232
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tift, W. G. HQ-SA/Roman, N. G. 11-Astronomy
 HQ-SA/Bogges, N. W.

NGL 03-002-081 **University of Arizona** **1133**
 Photometry and polarimetry of minor planets
Period *Obligations*
 03/14/66-06/30/77 FY76: \$30,000 TOTAL: \$359,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gehrels, T. HQ-SL/Fellows, R. F. 11-Astronomy
 HQ-SL/Donn, B. D.

NGL 03-002-122 **University of Arizona** **1134**
 Astrometric and astrophysical investigation of comets, minor
 planets, and satellites
Period *Obligations*
 02/22/67-04/30/78 FY76: \$26,280 TOTAL: \$214,295
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roemer, E. HQ-SL/Brunk, W. E. 11-Astronomy
 HQ-SL/Fellows, R. F.

NGL 03-002-191 **University of Arizona** **1135**
 Lunar surface and planetology study
Period *Obligations*
 05/16/69-05/31/77 FY76: \$48,462 TOTAL: \$483,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Strom, R. G. HQ-SL/Williams, R. J. 32-Geological Sci
 HQ-SL/Flinn, E. A.

NGL 03-002-313 **University of Arizona** **1136**
 Remote sensing applications for state & local government
Period *Obligations*
 03/07/72-02/28/79 FY76: \$100,000 TOTAL: \$500,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Johnson, J. D. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGR 03-002-071 **University of Arizona** **1137**
 Cosmic ray investigations of elementary particle phenomena at
 very high energies
Period *Obligations*
 01/12/66-10/31/75 FY76: TOTAL: \$985,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bowen, T. HQ-SA/Opp, A. G. 11-Astronomy

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|---|--------------------------------|-------------------------|
| NGR 03-002-107 | University of Arizona | 1138 |
| Basic research in astrophysics and space science | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/01/67-08/31/76 | FY76: \$50,000 | TOTAL: \$468,063 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hsieh, K. C. | HQ-ST/Cauffman, D. P. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

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|-------------------------------------|---------------------------|----------------------|
| NGR 03-002-171 | University of Arizona | 1139 |
| Analysis of carbonaceous meteorites | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/26/68-09/30/76 | FY76: \$45,000 | TOTAL: \$437,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nagy, B. | HQ-SB/Young, R. S. | 32-Geological Sci |
| Urey, H. C. | | |

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|--|------------------------------|----------------------|
| NGR 03-002-219 | University of Arizona | 1140 |
| Photopolarimetry of Mercury, Mars, and satellites | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/13/70-11/01/76 | FY76: \$35,017 | TOTAL: \$244,367 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gehrels, A. M. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

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|---|------------------------------|----------------------|
| NGR 03-002-269 | University of Arizona | 1141 |
| Operation of a 30 cm flying infrared telescope | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/04/71-05/31/77 | FY76: \$98,999 | TOTAL: \$358,169 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Low, F. J. | HQ-SA/Bogges, N. B. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

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|--|------------------------------|----------------------|
| NGR 03-002-332 | University of Arizona | 1142 |
| Infrared spectroscopy of the planets from 1-5.6 micron with the medium-resolution LPL Fourier interferometer | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/05/73-08/30/76 | FY76: \$97,000 | TOTAL: \$191,478 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Larson, H. P. | ARC/Cameron, R. M. | 11-Astronomy |
| Fink, E. | ARC/Gillespie, C. M., Jr. | |

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|---|------------------------------|------------------------|
| NGR 03-002-363 | University of Arizona | 1143 |
| Diffraction limited camera on the large space telescope | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/73-02/29/76 | FY76: \$3,650 | TOTAL: \$15,532 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Serkowski, K. M. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meese, K. J. | |

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|--|------------------------------|----------------------|
| NGR 03-002-370 | University of Arizona | 1144 |
| An investigation of electromagnetic processes in the early solar system with bearing on thermal evolution and fossil magnetism | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/73-11/15/76 | FY76: \$28,983 | TOTAL: \$124,733 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sonett, C. P. | HO-SL/Dwornik, S. E. | 32-Geological Sci |

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|---|------------------------------|----------------------|
| NGR 03-002-371 | University of Arizona | 1145 |
| Far infrared observations of galactic and extra-galactic sources of radiation | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/01/73-01/31/77 | FY76: \$50,000 | TOTAL: \$150,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASF Category</i> |
| Hoffman, W. F. | HQ-SA/Bogges, N. W. | 11-Astronomy |
| Aannestad, P. A. | | |
| Campbell, M. F. | | |

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|----------------------------|---------------------------------------|------------------------|
| NGR 03-002-372 | University of Arizona | 1146 |
| Silicon intensifier target | photon counting spectrograph research | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/74-02/28/75 | FY76: | TOTAL: \$23,447 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gilbert, G. R. | GSFC/Sobieski, S. | 11-Astronomy |
| Weymann, R. J. | | |
| Strittmatter, P. A. | | |

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|--|------------------------------|------------------------|
| NGR 03-002-382 | University of Arizona | 1147 |
| Determination of atmospheric ozone profiles above 20 km | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/01/73-12/31/75 | FY76: | TOTAL: \$39,900 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Herman, B. M. | GSFC/Heath, D. F. | 31-Atmos Sci |

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|-----------------------|------------------------------|----------------------|
| NGR 03-002-388 | University of Arizona | 1148 |
| Lunar sample analysis | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/74-01/31/77 | FY76: \$45,000 | TOTAL: \$113,700 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Drake, M. J. | JSC/Harris, J. W. | 12-Chemistry |

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|---|------------------------------|------------------------|
| NGR 03-002-390 | University of Arizona | 1149 |
| Mapping structure of galactic center | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/73-03/31/77 | FY76: \$33,800 | TOTAL: \$89,880 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffman, W. F. | ARC/Cameron, R. M. | 11-Astronomy |
| Harvey, P. | | |

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|--|------------------------------|----------------------|
| NSG 2042 | University of Arizona | 1150 |
| Photometric observations between 2 and 35 microns from the C-141 | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/24/74-10/31/76 | FY76: | TOTAL: \$25,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Woolf, N. | ARC/Cameron, R. M. | 11-Astronomy |
| | ARC/Gillespie, C. M., Jr. | |

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|--------------------------------------|------------------------------|----------------------|
| NSG 2112 | University of Arizona | 1151 |
| Inviscid transonic flow computations | | |
| <i>Period</i> | <i>Obligations</i> | |
| 11/01/75-11/25/76 | FY76: \$49,973 | TOTAL: \$49,973 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Seebass, A. R. | ARC/Ballhaus, W. F. | 41-Aero Engr |
| | ARC/Bailey, F. R. | |

NASA'S UNIVERSITY PROGRAM ARIZONA (Continued)

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|---|------------------------------|----------------------|
| NSG 5001 | University of Arizona | 1152 |
| Large space telescope diffraction limited camera investigations | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/01/74-02/29/76 | FY76: \$4,094 | TOTAL: \$16,409 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Angel, J. R. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meese, K. J. | |

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|--|------------------------------|----------------------|
| NSG 5022 | University of Arizona | 1153 |
| Investigation of the basic foundation of masers and lasers | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/01/74-09/30/76 | FY76: \$30,000 | TOTAL: \$50,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lamb, W. E., Jr. | GSFC/McAvoy, N. | 13-Physics |

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|----------------------------------|------------------------------|----------------------|
| NSG 5023 | University of Arizona | 1154 |
| Lightning detection study | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/01/74-09/30/76 | FY76: \$15,000 | TOTAL: \$30,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Krider, E. P. | GSFC/Levine, D. M. | 31-Atmos Sci |

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| NSG 5043 | University of Arizona | 1155 |
| Observational and theoretical studies of the atmosphere of Venus | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/75-12/31/76 | FY76: \$16,000 | TOTAL: \$31,988 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gehrels, A. M. | GSFC/Hansen, J. E. | 11-Astronomy |
| | GSFC/Thaddeus, P. | |

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|--|---------------------------|----------------------|
| NSG 5046 | University of Arizona | 1156 |
| Theoretical studies of acquisition of radiative transfer | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/75-01/31/76 | FY76: | TOTAL: \$29,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Herman, B. M. | GSFC/Curran, R. J. | 31-Atmos Sci |

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|--|------------------------------|----------------------|
| NSG 7011 | University of Arizona | 1157 |
| Radiation history of meteorites | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/01/74-02/28/77 | FY76: \$38,449 | TOTAL: \$81,699 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Wilkening, L. L. | HQ-SL/French, B. M. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

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|---|------------------------------|----------------------|
| NSG 7014 | University of Arizona | 1158 |
| Comparison of color composite photography with other lunar data | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/01/74-02/28/75 | FY76: | TOTAL: \$2,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Whitaker, E. A. | HQ-SM/Hanley, J. B. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

| NSG 7020 | | University of Arizona | 1159 |
|---|--------------------------------|-----------------------|------|
| Investigation of lunar induced and permanent magnetism in the lunar data analysis and synthesis program | | | |
| Period | Obligations | | |
| 03/01/74-12/31/76 | FY76: \$119,563 | TOTAL: \$251,854 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Sonett, C. P. | HQ-SM/Stuart -Alexander, D. E. | 32-Geological Sci | |
| Schubert, G. | HQ-SL/Flinn, E. A. | | |
| Skerchen, W. I. | | | |

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|---|------------------------------|----------------------|
| NSG 7024 | University of Arizona | 1160 |
| Study of the earth's magnetosphere and solar wind | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/74-10/30/76 | FY76: \$45,000 | TOTAL: \$145,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sonett, C. P. | HQ-ST/Cauffman, D. P. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

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|--------------------------------|------------------------------|----------------------|
| NSG 7045 | University of Arizona | 1161 |
| Interiors of the giant planets | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/22/74-03/31/77 | FY76: \$30,000 | TOTAL: \$90,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hubbard, W. B., Jr. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HO-SL/Fellows, R. F. | |

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|-------------------------------|------------------------------|----------------------|
| NSG 7070 | University of Arizona | 1162 |
| Planetary spectroscopy | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/74-05/31/79 | FY76: \$75,765 | TOTAL: \$201,714 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Fink, U. W. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

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|--|------------------------------|----------------------|
| NSG 7101 | University of Arizona | 1163 |
| Study structure of astrophysical plasma and turbulent fluctuations | | |
| <i>Period</i> | <i>Obligations</i> | |
| 11/18/74-08/31/76 | FY76: \$40,000 | TOTAL: \$80,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jokipii, J. | HQ-SA/Sofia, S. | 11-Astronomy |
| | HQ-SA/Opp. A. G. | |

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|--------------------------------------|------------------------------|----------------------|
| NSG 7114 | University of Arizona | 1164 |
| Infrared observations of the planets | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/20/75-05/31/77 | FY76: | TOTAL: \$22,867 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rieke, G. H. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

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|---------------------------|------------------------------|------------------------|
| NSG 7123 | University of Arizona | 1165 |
| Jupiter colloquium | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/20/75-01/31/76 | FY76: \$1 | TOTAL: \$15,800 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gehrels, A. M. | HQ-SL/Fellows, R. F. | 11-Astronomy |

NASA'S UNIVERSITY PROGRAM

ARIZONA (Continued)

NSG 7142 University of Arizona **1166**
Evaluation of a large format image tube camera/film transport system

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/75-05/31/77 | FY76: \$43,750 | TOTAL: \$43,750 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Tiftt, W. G. | HQ-SA/Roman, N. G. | 45-Elec Engr |

NSG 7146 University of Arizona **1167**
Geologic investigation of Mercury from Mariner 10 television data

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 07/01/75-10/31/76 | FY76: \$40,200 | TOTAL: \$40,200 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Strom, R. G. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |

NSG 7168 University of Arizona **1168**
Studies in the production of astrophysical magnetic field

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Levy, E. H. | HQ-ST/Timothy, A. F. | 13-Physics |

NSG 7201 University of Arizona **1169**
Orbital resonances in the planet-building process

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 04/01/76-03/31/77 | FY76: \$43,473 | TOTAL: \$43,473 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Greenberg, R. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| Hartmann, W. K. | HQ-SL/Flinn, E. A. | |
| Apman, C. H. | | |

NSG 7238 University of Arizona **1170**
Uranus occultation

| Period | Obligations | |
|---------------------|--------------------|-----------------|
| 05/01/76-04/30/77 | FY76: \$41,580 | TOTAL: \$41,580 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hubbard, W. B., Jr. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ/Fellows, R. F. | |

NSG 7246 University of Arizona **1171**
Carbonaceous fragments

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 07/01/76-07/30/77 | FY76: \$17,230 | TOTAL: \$17,230 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gehrels, A. M. | HQ-SL/French, B. M. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7249 University of Arizona **1172**
High precision polarimetry of meteorites

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 07/01/76-06/30/77 | FY76: \$30,282 | TOTAL: \$30,282 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zellner, B. H. | HQ-SL/French, B. M. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

ARKANSAS

NAS 9-14921 Harding College **1173**
Study of optimal training protocols and devices for developing and maintaining physical fitness in females prior to and during space flight

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 03/01/76-02/28/77 | FY76: \$49,300 | TOTAL: \$49,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Olree, H. D. | JSC/Rummel, J. A. | 53-Other Medical |
| Smith, C. W. | | |

NAS 5-20810 University of Arkansas - Fayetteville **1174**
ERTS follow-on investigation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/28/75-11/28/76 | FY76: | TOTAL: \$58,507 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| MacDonald, H. | GSFC/Szajna, E. F. | 39-Env Sci, NEC |

NAS 8-31550 University of Arkansas - Fayetteville **1175**
Statistical analyses of multivariate atmospheric variables

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/31/75-10/30/76 | FY76: \$12,485 | TOTAL: \$12,485 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carter, M. C. | MSFC/Falls, L. W. | 31-Atmos Sci |
| | ARC/Smith, O. E. | |

NAS 8-31771 University of Arkansas - Fayetteville **1176**
Data processing and display of laser Doppler dust-devil experimental results

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 01/12/76-09/12/76 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Skeith, R. W. | MSFC/Huffaker, R. M. | 31-Atmos Sci |
| Ashmore, B. | MSFC/Jeffreys, H. B. | |

NAS 9-14251 University of Arkansas - Fayetteville **1177**
Remote sensing of soil moisture content

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/01/74-05/31/77 | FY76: \$39,500 | TOTAL: \$78,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Waite, W. P. | JSC/Potter, A. E. | 19-Phys Sci, NEC |

NGL 04-001-007 University of Arkansas - Fayetteville **1178**
Application of lasers to instrumentation & measurement techniques

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 06/15/70-02/28/77 | FY76: \$17,082 | TOTAL: \$361,781 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Testerman, M. K. | ARC/Ahtye, W. F. | 41-Aero Engr |
| Mazumder, M. K. | ARC/Seegmiller, H. L. | |

NASA'S UNIVERSITY PROGRAM
ARKANSAS (Continued)

NSG 7106 **University of Arkansas - Fayetteville** **1179**
 Scalable standard optical sources in VUV emissions from electron impact on metals

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|-------------------------------------|----------------------|
| 02/15/75-02/14/77 | FY76: \$22,000 TOTAL: \$42,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hughes, R. H. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NCA 2-45501 **University of Arkansas - Little Rock** **1180**
 Development of flow seeding methods in high speed wind tunnels

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/11/75-03/10/76 | FY76: TOTAL: \$8,723 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Testerman, M. K. | ARC/Zill, L. P. | 41-Aero Engr |
| Mazumder, M. K. | | |

NCA 2-45601 **University of Arkansas - Little Rock** **1181**
 Aerosol kinetics in high speed wind tunnels

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|-----------------------------------|----------------------|
| 03/11/76-05/31/77 | FY76: \$4,306 TOTAL: \$4,306 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Testerman, M. K. | ARC/Johnson, D. A. | 41-Aero Engr |

NAS 9-13196 **University of Arkansas - Monticello** **1182**
 Geologic structure of shallow maria data analysis

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|----------------------------|----------------------|
| 11/10/72-12/31/75 | FY76: TOTAL: \$42,383 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dehon, R. A. | JSC/Hardee, S. N. | 13-Physics |

NGR 04-008-001 **University of Arkansas - Monticello** **1183**
 Mars geologic mapping MC-29

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|------------------------------------|----------------------|
| 03/15/73-05/31/76 | FY76: \$2,350 TOTAL: \$15,929 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dehon, R. A. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

NSG 7216 **University of Arkansas - Monticello** **1184**
 Thickness of mare basalts: Western mare basins

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|-----------------------------------|----------------------|
| 02/01/76-01/31/77 | FY76: \$7,321 TOTAL: \$7,321 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dehon, R. A. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7244 **University of Arkansas - Monticello** **1185**
 Mercury geological mapping

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|-----------------------------------|----------------------|
| 06/01/76-05/31/77 | FY76: \$7,247 TOTAL: \$7,247 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dehon, R. A. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Wahmann, R. | |

CALIFORNIA

NAS 1-9703 **California Institute of Technology** **1186**
 Participation in seismology planning for the Viking 1975 missions

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------------------|----------------------|
| 04/08/70-03/31/77 | FY76: \$215,806 TOTAL: \$802,876 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Anderson, D. L. | LARC/Williams, T. S., Jr. | 39-Env Sci, NEC |
| | LARC/Glenny, W. R. | |

NAS 1-12311 **California Institute of Technology** **1187**
 Participation in science planning for Viking 1975 mission in the area of biology

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|--------------------------------------|----------------------|
| 07/02/73-03/31/77 | FY76: \$26,900 TOTAL: \$157,265 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Horowitz, N. H. | LARC/Williams, T. S., Jr. | 51-Biology |
| | LARC/Glenny, W. R. | |

NAS 2-6556 **California Institute of Technology** **1188**
 Pioneer F/G data analysis

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|--------------------------------------|----------------------|
| 09/17/71-06/30/76 | FY76: \$38,202 TOTAL: \$205,949 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Munch, G. | ARC/Hall, C. F. | 11-Astronomy |
| | ARC/Porter, D. L. | |

NAS 5-11066 **California Institute of Technology** **1189**
 IMP-H&J electron isotope spectrometer experiment

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|--|----------------------|
| 01/12/68-11/31/76 | FY76: \$60,000 TOTAL: \$1,654,321 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Stone, E. C. | GSFC/Davis, M. A. | 13-Physics |

NAS 5-20492 **California Institute of Technology** **1190**
 Infrared photometry study

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|----------------------------|----------------------|
| 05/10/74-08/31/76 | FY76: TOTAL: \$45,300 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Neugebauer, G. | GSFC/Kelsall, T. N. | 31-Atmos Sci |

NAS 5-20721 **California Institute of Technology** **1191**
 High energy cosmic rays experiment for International Sun/Earth Explorer spacecraft

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------------------|----------------------|
| 02/07/75-07/31/80 | FY76: \$789,000 TOTAL: \$834,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Stone, L. C. | GSFC/Gallagher, W. F. | 13-Physics |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NAS 5-22555 California Institute of Technology 1192
Mission definition study of an astronomical satellite survey in the infrared

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 06/15/75-09/19/76 | FY76: \$25,760 | TOTAL: \$25,760 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neugebauer, G. | GSFC/Hymowitz, E. W. | 11-Astronomy |

NAS 5-22939 California Institute of Technology 1193
Helioscope camera definition study

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/10/76-09/10/76 | FY76: \$25,001 | TOTAL: \$25,001 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zirin, H. | GSFC/Neupert, W. M. | 11-Astronomy |

NAS 5-22965 California Institute of Technology 1194
Nimbus G earth radiation budget sensor support

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/27/76-01/26/79 | FY76: \$10,000 | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ingersoll, A. P. | GSFC/Nelson, D. W. | 31-Atmos Sci |

NAS 5-23287 California Institute of Technology 1195
Instrument definition study for LST

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/24/73-09/30/76 | FY76: \$20,749 | TOTAL: \$50,697 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neugebauer, G. | GSFC/Sobieski, S. | 11-Astronomy |

NAS 5-23315 California Institute of Technology 1196
Cosmic X-ray experiment for HEAO-2

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 11/15/73-04/30/78 | FY76: \$189,746 | TOTAL: \$496,746 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Garmire, G. P. | GSFC/Wrublik, D. P. | 11-Astronomy |

NAS 5-23615 California Institute of Technology 1197
Extreme ultraviolet and soft X-ray study

| Period | Obligations | |
|-------------------|---------------------|----------------|
| 06/21/76-11/05/76 | FY76: \$9,002 | TOTAL: \$9,002 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Garmire, G. P. | GSFC/Weinreb, M. B. | 11-Astronomy |

NAS 8-27978 California Institute of Technology 1198
Design, development & operation of the ACR-7 heavy nuclei experiment under the HEAO program

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/23/72-02/15/80 | FY76: \$41,500 | TOTAL: \$200,060 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stone, E. C. | MSFC/Krome, H. O. | 11-Astronomy |
| | MSFC/Cochran, J. | |

NAS 8-29313 California Institute of Technology 1199
Dynamics of unsteady cavitating cascades

| Period | Obligations | |
|-------------------|--------------------------|------------------|
| 09/28/72-10/27/76 | FY76: \$68,000 | TOTAL: \$289,012 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Acosta, A. J. | MSFC/Gross, L. A. | 46-Mech Engr |
| | MSFC/Stinson, H. P., Jr. | |

NGL 05-002-003 California Institute of Technology 1200
Basic scientific research on lunar & planetary exploration

| Period | Obligations | |
|-------------------|----------------------|--------------------|
| 12/01/59-11/30/78 | FY76: \$190,345 | TOTAL: \$2,660,288 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Muhleman, D. O. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NGL 05-002-007 California Institute of Technology 1201
Space related research in cosmic rays, interplanetary magnetic fields, solar physics, theoretical astrophysics, planetary spectroscopy & infrared astronomy

| Period | Obligations | |
|-------------------|--------------------|--------------------|
| 05/20/63-09/30/75 | FY76: | TOTAL: \$4,645,302 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neugebauer, G. | HQ-SL/Brunk, W. E. | 11-Astronomy |

NGL 05-002-034 California Institute of Technology 1202
Research in solar flares and the solar atmosphere

| Period | Obligations | |
|-------------------|----------------------|--------------------|
| 05/18/65-09/01/76 | FY76: \$180,000 | TOTAL: \$2,132,353 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Henry, D. G. | HQ-ST/Timothy, A. F. | 11-Astronomy |
| Mazumder, M. K. | | |

NGL 05-002-069 California Institute of Technology 1203
Theoretical investigation of planetary interiors

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 06/12/67-02/28/78 | FY76: | TOTAL: \$553,729 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Anderson, D. L. | HQ-SM/Bryson, R. P. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NGL 05-002-105 California Institute of Technology 1204
Shock effects in minerals

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 08/16/68-03/31/79 | FY76: \$115,853 | TOTAL: \$753,129 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ahrens, T. J. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NGL 05-002-134 California Institute of Technology 1205
Modern astronomical instrument development

| Period | Obligations | |
|-------------------|------------------------|------------------|
| 10/27/69-09/30/78 | FY76: \$61,000 | TOTAL: \$539,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oke, J. B. | HQ-SA/Rosendahl, J. D. | 11-Astronomy |
| Dennison, E. W. | HQ-SA/Roman, N. G. | |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGL 05-002-136 **California Institute of Technology** **1206**
Research on turbomachines
Period *Obligations*
06/02/69-04/30/76 FY76: TOTAL: \$248,325
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rannie, W. D. LERC/Sandercock, D. M. 41-Aero Engr

NGL 05-002-140 **California Institute of Technology** **1207**
Research in planetary astronomy
Period *Obligations*
04/11/69-03/31/79 FY76: TOTAL: \$383,905
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Munch, G. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGL 05-002-187 **California Institute of Technology** **1208**
Lunar sample analysis
Period *Obligations*
02/09/71-07/31/76 FY76: TOTAL: \$655,485
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Silver, L. T. JSC/Harris, J. W. 12-Chemistry

NGL 05-002-188 **California Institute of Technology** **1209**
Lunar sample analysis
Period *Obligations*
02/03/71-01/31/79 FY76: \$561,200 TOTAL: \$2,953,853
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wasserburg, G. J. JSC/Harris, J. W. 12-Chemistry

NGL 05-002-190 **California Institute of Technology** **1210**
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/79 FY76: \$102,460 TOTAL: \$726,610
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Epstein, S. JSC/Harris, J. W. 13-Physics

NGL 05-002-207 **California Institute of Technology** **1211**
Research in infrared and X-ray astronomy
Period *Obligations*
02/18/71-09/30/78 FY76: \$100,000 TOTAL: \$565,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Neugebauer, G. HQ-SA/Bogges, N. W. 11-Astronomy
HQ-SA/Roman, N. G.

NGL 05-002-229 **California Institute of Technology** **1212**
Experimental study of flow about a stalled two-dimensional airflow
Period *Obligations*
05/11/71-05/31/76 FY76: \$15,300 TOTAL: \$202,620
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coles, D. E. ARC/Olson, L. E. 41-Aero Engr
Roshko, A. ARC/Rossow, V. J.

NGL 05-002-338 **California Institute of Technology** **1213**
Petrologic and microprobe investigations on isotopically dated lunar samples
Period *Obligations*
02/01/74-01/31/79 FY76: \$80,400 TOTAL: \$297,112
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Albee, A. L. JSC/Harris, J. W. 13-Physics

NGR 05-002-114 **California Institute of Technology** **1214**
Radio interferometry of Mars and Venus
Period *Obligations*
10/11/68-09/30/76 FY76: \$47,005 TOTAL: \$277,876
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muhleman, D. O. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGR 05-002-117 **California Institute of Technology** **1215**
Analysis and evaluation of alternative approaches to photography from a Mercury/Venus flyby
Period *Obligations*
10/01/68-09/30/76 FY76: \$60,000 TOTAL: \$562,775
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Murray, B. C. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NGR 05-002-121 **California Institute of Technology** **1216**
A study of water metabolism in neurospora crassa
Period *Obligations*
01/01/69-12/31/76 FY76: \$55,120 TOTAL: \$329,119
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horowitz, N. H. HQ-SB/Young, R. S. 51-Biology

NGR 05-002-142 **California Institute of Technology** **1217**
Research in solar physics
Period *Obligations*
06/12/69-09/30/75 FY76: TOTAL: \$286,333
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zirin, H. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 05-002-160 **California Institute of Technology** **1218**
Research in particles and fields
Period *Obligations*
10/27/69-09/30/77 FY76: \$300,000 TOTAL: \$1,945,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vogt, R. E. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

NGR 05-002-185 **California Institute of Technology** **1219**
Design and supervision of an infrared sky noise survey
Period *Obligations*
06/25/70-06/30/74 FY76: TOTAL: \$292,608
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Westphal, J. A. HQ-SL/Brunk, W. E. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGR 05-002-256 California Institute of Technology 1220
Study and research on experimental tests of gravitation theory

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 02/23/72-12/31/76 | FY76: \$45,513 | TOTAL: \$135,513 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Thorne, D. | HQ-SA/Bogges, N. W. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NGR 05-002-281 California Institute of Technology 1221
High angular resolution of H-II regions and associated galactic sources

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 03/01/73-08/31/76 | FY76: \$65,703 | TOTAL: \$155,663 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Werner, M. W. | ARC/Cameron, R. M. | 11-Astronomy |
| Becklin, E. E. | ARC/Gillespie, C. M., Jr. | |

NGR 05-002-284 California Institute of Technology 1222
High angular resolution cosmic X-ray astronomy observations in the energy band 0.15-2Ke and XUV observations of early stars from an attitude controlled rocket

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 03/05/73-09/30/76 | FY76: \$139,500 | TOTAL: \$539,106 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Garmire, G. P. | HQ-SA/Opp, A. G. | 11-Astronomy |

NGR 05-002-294 California Institute of Technology 1223
Analysis of OGO-5 and OGO-7 X-ray data

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 06/27/73-01/31/75 | FY76: | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zirin, H. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NGR 05-002-296 California Institute of Technology 1224
Selected X-ray studies to be performed using data from the UHURU (SAS-A)

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 07/01/73-01/15/75 | FY76: | TOTAL: \$25,046 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Garmire, G. P. | HQ-ST/Schmerling, E. R. | 11-Astronomy |

NGR 05-002-303 California Institute of Technology 1225
Systematic search program for new Apollo amor asteroids

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 08/01/73-07/31/76 | FY76: \$52,900 | TOTAL: \$113,132 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Shoemaker, E. M. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| Helin, E. F. | HQ-SL/Wahmann, R. | |

NGR 05-002-308 California Institute of Technology 1226
Mars related biological studies

| Period | Obligations | |
|-------------------|------------------------|------------------|
| 03/06/73-08/31/76 | FY76: \$45,000 | TOTAL: \$196,870 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Horowitz, N. H. | ARC/Chang, S. | 59-Life Sci, NEC |
| | ARC/De Vincenzi, D. L. | |

NGR 05-002-310 California Institute of Technology 1227
Geochemistry of biomolecules

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 03/06/73-06/30/75 | FY76: | TOTAL: \$90,389 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bonner, J. | HQ-SB/Young, R. S. | 32-Geological Sci |

NGR 05-002-311 California Institute of Technology 1228
Investigation of low dispersion spectrograph large space telescope

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/73-06/30/76 | FY76: \$4,959 | TOTAL: \$20,802 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oke, J. B. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meese, K. J. | |

NGR 05-002-333 California Institute of Technology 1229
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/01/74-01/31/77 | FY76: \$194,200 | TOTAL: \$295,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Tombrello, T. A. | JSC/Harris, J. W. | 13-Physics |

NGR 05-002-340 California Institute of Technology 1230
Virtual integration of planetary exploration robot

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 12/01/73-01/31/76 | FY76: | TOTAL: \$70,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ingargiola, G. | HQ-RE/Pontious, C. E. | 49-Engr, NEC |
| Weinstein, M. | JPL/Wedel, J. J. | |

NGR 05-002-345 California Institute of Technology 1231
A 65-100 cm aperture photo-heliograph for the space shuttle

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 10/01/73-09/30/76 | FY76: \$60,000 | TOTAL: \$280,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zirin, H. | HQ-ST/Timothy, A. F. | 13-Physics |

NSG 1005 California Institute of Technology 1232
Utilization of stags to determine knockdown factors from measured initial imperfections

| Period | Obligations | |
|---------------------|----------------------|-----------------|
| 07/01/74-09/30/76 | FY76: \$30,305 | TOTAL: \$57,222 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Babcock, C. D., Jr. | LARC/Davis, R. C. | 41-Aero Engr |
| Arbocz, J. | LARC/Stephens, W. B. | |

NSG 2154 California Institute of Technology 1233
Synthesis of a composite reverse osmosis membrane at one atmosphere in an electric discharge

| Period | Obligations | |
|-------------------|----------------------|----------------|
| 05/01/76-10/31/76 | FY76: \$6,562 | TOTAL: \$6,562 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Shair, F. | ARC/Wydeven, T., Jr. | 12-Chemistry |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NSG 5058 **California Institute of Technology** **1234**
Seismotectonic studies of areas of major world-wide earthquakes utilizing ERTS images

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/01/75-03/31/76 | FY76: | TOTAL: \$8,034 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Allen, C. R. | GSFC/Lowman, P. D. | 39-Env Sci, NEC |

NSG 7023 **California Institute of Technology** **1235**
Synthesis of particle exposure data for lunar samples

| Period | Obligations | |
|-------------------|-------------------------------|-------------------|
| 04/01/74-01/31/76 | FY76: \$15,900 | TOTAL: \$52,832 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Burnett, D. S. | HQ-SM/Stuart-Alexander, D. E. | 32-Geological Sci |
| Woolum, D. S. | HQ-SM/Roberson, F. I. | |

NSG 7084 **California Institute of Technology** **1236**
Technical evaluation and development of the ion probe

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 07/01/74-06/30/76 | FY76: \$41,107 | TOTAL: \$82,214 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wasserburg, G. J. | HQ-SM/Bryson, R. P. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NSG 7094 **California Institute of Technology** **1237**
Reduction of Mariner 71 infrared radiometer data

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 07/01/74-09/30/76 | FY76: | TOTAL: \$18,567 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neugebauer, G. | HQ-SL/Fellows, R. F. | 32-Geological Sci |
| | HQ-SL/Brunk, W. E. | |

NSG 7112 **California Institute of Technology** **1238**
Research on time-sequenced mosaics of the ultra-violet images of Venus clouds obtained by Mariner 10

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 07/01/74-03/31/76 | FY76: | TOTAL: \$25,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Murray, B. C. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

NSG 7125 **California Institute of Technology** **1239**
Scientific rationale and feasibility of developing a planetary scanning electron microscope

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 04/01/75-09/30/76 | FY76: | TOTAL: \$15,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Albee, A. L. | HQ-SL/Dwornik, S. E. | 19-Phys Sci, NEC |

NSG 7129 **California Institute of Technology** **1240**
Relationship of impact cratering to the evolution of the lunar surface

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 04/01/75-03/31/79 | FY76: \$136,829 | TOTAL: \$176,829 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ahrens, T. J. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7136 **California Institute of Technology** **1241**
Millimeter wave interferometry

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 02/01/75-01/31/76 | FY76: | TOTAL: \$50,150 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Leighton, R. B. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NSG 7140 **California Institute of Technology** **1242**
Support for reduction of joint infrared and Copernicus X-ray observations of Cygnus X-3

| Period | Obligations | |
|-------------------|---------------------|----------------|
| 05/01/75-04/30/76 | FY76: | TOTAL: \$5,154 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neugebauer, G. | HQ-SA/Bogges, N. W. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NSG 7155 **California Institute of Technology** **1243**
Data analysis of Mariner 10 imagery of Mercury

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 05/01/75-06/30/76 | FY76: \$35,000 | TOTAL: \$35,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Murray, B. C. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

NSG 7160 **California Institute of Technology** **1244**
Development of design criteria for penetrator emplacement of a multi-station seismic experiment on Mars

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 07/01/75-12/31/76 | FY76: \$32,196 | TOTAL: \$32,196 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Anderson, D. L. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |

NSG 7195 **California Institute of Technology** **1245**
The origin of the chemical elements of stellar flashes

| Period | Obligations | |
|------------------------|------------------------|-----------------|
| 04/01/76-12/15/76 | FY76: \$25,000 | TOTAL: \$25,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Christysackmann, I. J. | HQ-SA/Roman, N. G. | 11-Astronomy |
| | HQ-SA/Rosendhal, J. D. | |

NSG 7202 **California Institute of Technology** **1246**
Laboratory partitioning studies relevant to the interpretation of lunar and meteoritic trace element data

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 02/01/76-01/31/77 | FY76: \$68,667 | TOTAL: \$68,667 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Burnett, D. S. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)

NSG 9019 **California Institute of Technology** **1247**
Shock compression measurements on lunar samples
Period *Obligations*
10/01/74-01/31/77 FY76: \$65,000 TOTAL: \$156,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahrens, T. J. JSC/Harris, J. W. 19-Phys Sci, NEC

NCA 2-678601 **California Polytechnic State Univ.** **1248**
Effects of data acquisition time skew
Period *Obligations*
06/13/76-09/02/76 FY76: \$6,260 TOTAL: \$6,260
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grimes, J. E. ARC/Maisel, M. D. 21-Mathematics

NCA 2-720601 **California State College, Sonoma** **1249**
Study of the Panoche valley Ophiolite complex
Period *Obligations*
07/01/75-07/31/76 FY76: TOTAL: \$3,937
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, T. ARC/Zill, L. P. 99-Multi-Discip

NASW 2835 **California State University - Chico** **1250**
Spacemobile operation and maintenance, space science education project
Period *Obligations*
07/01/75-06/30/76 FY76: \$1,016,633 TOTAL: \$1,016,633
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable HQ-FE/Rich, W. B. 99-Multi-Discip

NCA 2-110502 **California State University - Chico** **1251**
Effect of restricting the horizontal field of view on pilot performance
Period *Obligations*
09/01/74-01/31/76 FY76: TOTAL: \$1,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huntsinger, R. ARC/Zill, L. P. 41-Aero Engr

NCA 2-110504 **California State University - Chico** **1252**
Aircraft interior composite panels
Period *Obligations*
06/15/75-09/15/75 FY76: \$291 TOTAL: \$4,091
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sours, C. F. ARC/Zill, L. P. 41-Aero Engr

NCA 2-110601 **California State University - Chico** **1253**
Jupiter radiation model development
Period *Obligations*
12/15/75-02/01/76 FY76: \$730 TOTAL: \$730
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zeilenga, J. H. ARC/Zill, L. P. 11-Astronomy

NCA 2-110602 **California State University - Chico** **1254**
Modeling the dispersal of dothistroma pini and endocronartium Harkness II
Period *Obligations*
04/01/76-03/31/77 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burleigh, J. R. ARC/Sanesta, P. D. 51-Biology

NSG 2163 **California State University - Chico** **1255**
Flammability and toxicity of various laminated composite panels for aircraft objective
Period *Obligations*
05/20/76-08/19/76 FY76: \$3,176 TOTAL: \$3,176
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sours, R. ARC/Kourtides, D. A. 12-Chemistry
Walty, R. J. ARC/Gilwee, W. J.

NCA 2-253601 **California State University - Fullerton** **1256**
Structure-function relationships in thermophile membranes
Period *Obligations*
07/01/75-06/30/76 FY76: TOTAL: \$6,802
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Esser, A. E. ARC/Zill, L. P. 51-Biology

NGR 05-071-008 **California State University - Fullerton** **1257**
Electrocyclic reactions in the interstellar media
Period *Obligations*
04/25/73-05/31/75 FY76: TOTAL: \$48,502
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wegner, P. A. HQ-SB/Young, R. S. 12-Chemistry
Bailey, D. T.

NCA 2-290401 **California State Univ. -Hayward** **1258**
Development of testing and training programs to produce groups of professionals for high-stress missions
Period *Obligations*
06/01/74-06/18/75 FY76: \$250 TOTAL: \$2,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sieber, J. E. ARC/Zill, L. P. 61-Biol Aspects

NCA 2-290501 **California State Univ. -Hayward** **1259**
Racemization of amino acids in marine sediment as paleo environmental indicator
Period *Obligations*
08/01/75-07/31/76 FY76: TOTAL: \$4,045
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warnke, D. E. ARC/Zill, L. P. 32-Geological Sci

NCA 2-290601 **California State Univ. - Hayward** **1260**
Racemization of amino acids in marine sediments
Period *Obligations*
08/01/75-07/31/76 FY76: \$3,795 TOTAL: \$3,795
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Warnke, D. A. ARC/Zill, L. P. 33-Oceanography

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-290602 **California State Univ. -Hayward** **1261**
Temperature effects on bacterial lipid metabolism

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 08/01/75-07/31/76 | FY76: \$4,210 | TOTAL: \$4,210 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Smith, P. | ARC/Zill, L. P. | 51-Biology |

NAS 1-13656 **California State University - Long Beach** **1262**
Unsteady turbulent flows

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 10/24/74-03/10/76 | FY76: | TOTAL: \$29,997 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cebeci, T. | ARC/Carr, L. W. | 41-Aero Engr |
| | LARC/Young, W. H., Jr. | |

NAS 1-14276 **California State University - Long Beach** **1263**
Study of unsteady turbulent flow calculation

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 12/30/75-06/30/77 | FY76: \$29,977 | TOTAL: \$29,977 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cebeci, T. | LARC/Young, W. H., Jr. | 41-Aero Engr |
| | ARC/Carr, L. W. | |

NCA 2-385502 **California State University - Los Angeles** **1264**
Photochemistry of the lower Jovian atmosphere

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/75-03/31/76 | FY76: \$5,200 | TOTAL: \$10,400 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goldwhite, H. | ARC/Zill, L. P. | 11-Astronomy |

NSG 7229 **California State University - Los Angeles** **1265**
Development of a direct contact heat exchanger for application in power generation systems utilizing geothermal brines

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/15/76-06/14/77 | FY76: \$25,000 | TOTAL: \$25,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Maniv, R. | HQ-P/Pohly, J. G. | 46-Mech Engr |
| | JPL/Nakamura, Y. | |

NSG 3065 **California State University - Northridge** **1266**
Study of rolling element dynamic interactions with separators and raceway paths

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/15/75-10/14/77 | FY76: \$25,000 | TOTAL: \$69,980 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nypan, L. J. | LERC/Coe, H. H. | 46-Mech Engr |
| | LERC | |

NGR 05-058-003 **California State University - Sacramento** **1267**
Development of combustion stability specifications and verification procedures for liquid propellant rocket engines

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/23/72-07/29/77 | FY76: \$9,988 | TOTAL: \$24,222 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reardon, F. H. | LERC/Priem, R. J. | 42-Astro Engr |

NSG 2005 **De Anza College** **1268**
Geotechnical investigation of landslide

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 01/15/74-12/31/76 | FY76: | TOTAL: \$15,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Greisen, K. I. | ARC/Blanchard, M. B. | 32-Geological Sci |

NAS 2-8925 **Harvey Mudd College** **1269**
Generation and analysis of a mono-dispersed aerosol

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/06/75-09/30/76 | FY76: \$21,297 | TOTAL: \$28,597 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Woodson, T. T. | ARC/Orloff, K. | 41-Aero Engr |

NSG 2159 **Pepperdine University** **1270**
An assessment of attitudes in the aeronautical community on conducting aeronautical research and technology in government laboratories

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/01/76-08/31/77 | FY76: \$14,532 | TOTAL: \$14,532 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Album, H. J. | ARC/Hornby, H. | 75-Political Sci |

NAS 1-11854 **Pomona College** **1271**
Participation in inorganic chemistry planning for the Viking 1975 missions

| Period | Obligations | |
|-------------------|---------------------------|-----------------|
| 08/09/72-03/31/77 | FY76: \$10,945 | TOTAL: \$28,380 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Baird, A. K. | LARC/Williams, T. S., Jr. | 12-Chemistry |
| | LARC/Glenny, W. R. | |

NGR 05-084-002 **Sacramento City College** **1272**
Correlation of type III radio events with hard X-ray and H data and analysis of in-process phase of solar flares

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 11/01/73-01/31/75 | FY76: | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vorpahl, J. A. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NAS 5-23249 **San Diego State University** **1273**
Atmospheric transmission measurements

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/25/73-09/25/76 | FY76: | TOTAL: \$43,998 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Angione, R. J. | GSFC/Roosen, R. G. | 11-Astronomy |

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 2138 San Diego State University 1274
Determination and evaluation of historic volcanic aerosol and ozone levels
Period Obligations
04/01/76-03/31/77 FY76: \$24,750 TOTAL: \$24,750
Prin. Invest. NASA Tech. Officer CASE Category
Angione, R. J. ARC/Pollack, J. B. 31-Atmos Sci
ARC/Farlow, N. H.

NSG 7026 San Diego State University 1275
Thermodynamic models of lunar meteorite impact incorporating a target porosity parameter
Period Obligations
06/01/74-05/31/77 FY76: \$32,849 TOTAL: \$85,728
Prin. Invest. NASA Tech. Officer CASE Category
Reh fuss, D. E. HQ-SL/Williams, R. J. 32-Geological Sci
HQ-SL/Flinn, E. A.

NCA 2-660410 San Francisco State University 1276
An investigation of binding between nucleotides and amino acids: an experiment on the origin of life
Period Obligations
06/01/74-10/01/75 FY76: TOTAL: \$4,800
Prin. Invest. NASA Tech. Officer CASE Category
Orenberg, J. B. ARC/Zill, L. P. 12-Chemistry

NCA 2-660411 San Francisco State University 1277
Investigation and development of an electronic system for the measurement of activity
Period Obligations
06/01/74-09/01/75 FY76: TOTAL: \$4,000
Prin. Invest. NASA Tech. Officer CASE Category
Catalano, G. T. ARC/Zill, L. P. 45-Elec Engr

NCA 2-660501 San Francisco State University 1278
Use of campus facilities
Period Obligations
08/01/74-07/31/76 FY76: \$59,076 TOTAL: \$113,012
Prin. Invest. NASA Tech. Officer CASE Category
Eisenberg, L. ARC/Zill, L. P. 99-Multi-Discip
Summerfelt, J. P.

NCA 2-660502 San Francisco State University 1279
Numerical solution of systems of first order partial differential equations
Period Obligations
01/01/75-06/15/75 FY76: TOTAL: \$4,319
Prin. Invest. NASA Tech. Officer CASE Category
Shaw, S. J. ARC/Zill, L. P. 21-Mathematics

NCA 2-660504 San Francisco State University 1280
Numerical studies of early phases of protosetellar evolution
Period Obligations
06/01/75-06/01/76 FY76: TOTAL: \$4,500
Prin. Invest. NASA Tech. Officer CASE Category
Hagar, C. ARC/Zill, L. P. 11-Astronomy
Bodenheimer, P.

NCA 2-660505 San Francisco State University 1281
An electron spin resonance spin-label study
Period Obligations
06/01/75-08/31/75 FY76: TOTAL: \$2,256
Prin. Invest. NASA Tech. Officer CASE Category
Plachy, W. Z. ARC/Zill, L. P. 13-Physics

NCA 2-660506 San Francisco State University 1282
Formation of organic microstructures from simple prebiotic compounds
Period Obligations
05/15/75-05/14/76 FY76: \$6,000 TOTAL: \$7,800
Prin. Invest. NASA Tech. Officer CASE Category
Auleb, L. ARC/Zill, L. P. 51-Biology

NCA 2-660601 San Francisco State University 1283
Operational methods in measurement of biomechanical motion
Period Obligations
01/01/76-12/31/76 FY76: \$9,219 TOTAL: \$9,219
Prin. Invest. NASA Tech. Officer CASE Category
Chealano, G. T. ARC/Zill, L. P. 59-Life Sci, NEC

NCA 2-660602 San Francisco State University 1284
Binding selectivity between nucleotides & amino acids
Period Obligations
09/01/75-08/31/76 FY76: \$8,000 TOTAL: \$8,000
Prin. Invest. NASA Tech. Officer CASE Category
Orenberg, J. B. ARC/Zill, L. P. 51-Biology

NCA 2-660603 San Francisco State University 1285
Effects of magnetic fields on evolution of protostars
Period Obligations
06/01/76-06/01/77 FY76: \$7,000 TOTAL: \$7,000
Prin. Invest. NASA Tech. Officer CASE Category
Hagar, C. ARC/Zill, L. P. 11-Astronomy

NSG 7234 San Francisco State University 1286
Melanoidin and aldocyanoin microspheres: new model systems for precellular chemical evolution
Period Obligations
06/01/76-05/31/77 FY76: \$7,450 TOTAL: \$7,450
Prin. Invest. NASA Tech. Officer CASE Category
Kenyon, D. H. HQ-SB/Young, R. S. 12-Chemistry

NAS 2-8983 San Jose State University 1287
Development of management information system for scheduling and cost control
Period Obligations
08/14/75-08/13/76 FY76: \$20,065 TOTAL: \$20,065
Prin. Invest. NASA Tech. Officer CASE Category
Neidleman, L. D. ARC/Eddy, R. E. 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-675304 **San Jose State University** **1288**
Chemical evolution and the origin of life
Period *Obligations*
01/02/73-10/31/75 FY76: TOTAL: \$3,838
Prin. Invest. *NASA Tech. Officer* *CASE Category*
West, M. W. ARC/Zill, L. P. 59-Life Sci, NEC

NCA 2-675413 **San Jose State University** **1295**
Neutron energy spectra and dose rates at aircraft altitudes
Period *Obligations*
05/01/74-07/31/75 FY76: \$3,128 TOTAL: \$7,628
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tucker, A. B. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675317 **San Jose State University** **1289**
Fire-resistant aircraft structures
Period *Obligations*
04/01/73-04/16/76 FY76: TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Holmstrom, F. ARC/Zill, L. P. 47-Materials Engr

NCA 2-675414 **San Jose State University** **1296**
Artificial meteor ablation products
Period *Obligations*
06/01/74-12/31/75 FY76: TOTAL: \$1,778
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Maddock, M. E. ARC/Zill, L. P. 19-Phys Sci, NEC

NCA 2-675401 **San Jose State University** **1290**
Effective ways to train journalism students to report science activities
Period *Obligations*
09/01/73-06/30/76 FY76: \$250 TOTAL: \$5,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, D. E. ARC/Zill, L. P. 73-History

NCA 2-675505 **San Jose State University** **1297**
Fire suppression and control systems for aircraft survivability
Period *Obligations*
09/01/74-06/30/75 FY76: TOTAL: \$15,989
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Myronuk, D. J. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675406 **San Jose State University** **1291**
Aeronautical structures. Design activity
Period *Obligations*
10/23/73-05/31/76 FY76: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leclair, R. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675506 **San Jose State University** **1298**
Study of the toxic effect of ammonia on microorganisms
Period *Obligations*
09/01/74-01/31/76 FY76: \$3,051 TOTAL: \$8,551
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haight, R. D. ARC/Zill, L. P. 51-Biology

NCA 2-675409 **San Jose State University** **1292**
Synthesis characterization and processing of bismaleimide resins
Period *Obligations*
03/01/74-06/30/75 FY76: TOTAL: \$3,236
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Neptune, J. ARC/Zill, L. P. 12-Chemistry

NCA 2-675509 **San Jose State University** **1299**
Two and three dimensional chemical/dynamical models of the stratosphere and mesosphere
Period *Obligations*
06/01/75-06/01/76 FY76: TOTAL: \$15,320
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Riegel, C. A. ARC/Zill, L. P. 31-Atmos Sci

NCA 2-675410 **San Jose State University** **1293**
Thermal-oxidative degradation study on elastomer for use in aircraft tires
Period *Obligations*
03/01/74-10/01/75 FY76: \$1,499 TOTAL: \$5,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Neptune, J. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675511 **San Jose State University** **1300**
Mechanisms of aspirin and stress involvement in the pathogenesis of gastric ulceration
Period *Obligations*
03/01/75-04/30/76 FY76: \$4,500 TOTAL: \$14,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sawrey, J. M. ARC/Zill, L. P. 53-Other Medical

NCA 2-675411 **San Jose State University** **1294**
Laboratory scale fire test facilities
Period *Obligations*
02/01/74-09/30/75 FY76: TOTAL: \$5,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sharfstein, H. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675512 **San Jose State University** **1301**
Cost effective analysis of communication and contract monitoring procedures
Period *Obligations*
01/01/75-12/31/75 FY76: TOTAL: \$8,429
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Monge, P. R. ARC/Zill, L. P. 99-Multi-Discip

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NCA 2-675513 **San Jose State University** **1302**
Improving utilization and efficiency of panel mesoscale meteorology program
Period *Obligations*
01/20/75-01/20/76 FY76: TOTAL: \$6,100
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leonard, T. E. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675514 **San Jose State University** **1303**
Investigations into the Johnson and Vand program for identification of multiphase powder diffraction data
Period *Obligations*
03/01/75-01/31/76 FY76: \$3,253 TOTAL: \$4,893
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. ARC/Zill, L. P. 13-Physics
Kyte, F. T.

NCA 2-675515 **San Jose State University** **1304**
Nutrition and calcium homeostasis
Period *Obligations*
01/01/75-12/31/75 FY76: \$2,827 TOTAL: \$7,827
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tseng, R. ARC/Zill, L. P. 53-Other Medical

NCA 2-675518 **San Jose State University** **1305**
Applying computer/scanner land-use data in a mesoscale meteorology program
Period *Obligations*
03/15/75-01/30/76 FY76: TOTAL: \$9,724
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ellesen, R. ARC/Zill, L. P. 31-Atmos Sci

NCA 2-675520 **San Jose State University** **1306**
Parameterization and boundary layer processes
Period *Obligations*
04/01/75-03/31/76 FY76: TOTAL: \$9,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, A. ARC/Zill, L. P. 41-Aero Engr

NCA 2-675521 **San Jose State University** **1307**
Assessment of toxic threat
Period *Obligations*
03/17/75-07/17/75 FY76: TOTAL: \$5,463
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Young, W. ARC/Zill, L. P. 51-Biology

NCA 2-675601 **San Jose State University** **1308**
Fire suppression and control systems
Period *Obligations*
07/01/75-12/31/75 FY76: TOTAL: \$15,319
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Myronuk, D. J. ARC/Zill, L. P. 49-Engr, NEC

NCA 2-675602 **San Jose State University** **1309**
Neutron energy spectra and dose rates at aircraft altitudes
Period *Obligations*
08/01/75-07/31/76 FY76: \$14,972 TOTAL: \$14,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tucker, A. B. ARC/Zill, L. P. 13-Physics

NCA 2-675603 **San Jose State University** **1310**
Deoxyribonucleic acid homologies among bacteria isolates
Period *Obligations*
08/01/75-07/31/76 FY76: \$2,500 TOTAL: \$2,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ballard, R. ARC/Zill, L. P. 51-Biology

NCA 2-675605 **San Jose State University** **1311**
Literature surveillance and bibliographic preparation
Period *Obligations*
11/01/75-10/31/76 FY76: \$4,497 TOTAL: \$4,497
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pefley, R. K. ARC/Zill, L. P. 99-Multi-Discip

NCA 2-675606 **San Jose State University** **1312**
Utilization and efficiency of panel flutter analytical capabilities
Period *Obligations*
01/20/76-01/20/77 FY76: \$5,500 TOTAL: \$5,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leonard, T. E. ARC/Gaspers, P. A., Jr. 41-Aero Engr

NCA 2-675607 **San Jose State University** **1313**
Numerical model of soil moisture content
Period *Obligations*
10/01/75-06/30/76 FY76: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bornstein, R. D. ARC/Zill, L. P. 32-Geological Sci

NCA 2-675608 **San Jose State University** **1314**
Enrichment for microaerophilic and/or anaerobic methane
Period *Obligations*
01/01/76-01/01/77 FY76: \$1,500 TOTAL: \$1,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grilione, P. ARC/Zill, L. P. 12-Chemistry

NCA 2-675610 **San Jose State University** **1315**
Nutrition and calcium homeostasis
Period *Obligations*
01/01/76-12/31/76 FY76: \$8,500 TOTAL: \$8,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Theng, R. ARC/Zill, L. P. 51-Biology

NCA 2-675611 **San Jose State University** **1316**
Fire suppression and control systems
Period *Obligations*
01/01/76-05/31/76 FY76: \$11,790 TOTAL: \$11,790
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Myronuk, D. J. ARC/Zill, L. P. 49-Engr, NEC

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NCA 2-675612 **San Jose State University** **1317**
Artificial ablation of the Murchison (C2) meteor

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 02/01/76-01/31/77 | FY76: \$7,400 | TOTAL: \$7,400 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Maddock, M. E. | ARC/Zill, L. P. | 11-Astronomy |

NCA 2-675613 **San Jose State University** **1318**
An investigation of soil modification

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 02/01/76-01/31/77 | FY76: \$6,000 | TOTAL: \$6,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Maddock, M. E. | ARC/Blanchard, M. B. | 32-Geological Sci |

NCA 2-675614 **San Jose State University** **1319**
Multi-dimensional chemical/dynamical models of stratosphere

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/76-06/01/77 | FY76: \$15,800 | TOTAL: \$15,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Riegel, C. A. | ARC/Zill, L. P. | 31-Atmos Sci |

NCA 2-675615 **San Jose State University** **1320**
Role of histamine in regulation of stress response

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/01/76-04/30/77 | FY76: \$12,300 | TOTAL: \$12,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sawrey, J. M. | ARC/Zill, L. P. | 51-Biology |

NCA 2-675616 **San Jose State University** **1321**
Design and construction of a test furnace

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 04/26/76-04/25/77 | FY76: \$16,000 | TOTAL: \$16,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sharfstein, H. | ARC/Mansfield, J. A. | 49-Engr, NEC |

NCA 2-675618 **San Jose State University** **1322**
Chemistry of fire extinguishment materials

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 02/01/76-08/31/76 | FY76: \$16,000 | TOTAL: \$16,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mayer, L. A. | ARC/Altman, R. L. | 47-Materials Engr |

NGL 05-046-002 **San Jose State University** **1323**
Angular acceleration in man

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 09/01/67-08/31/78 | FY76: \$185,395 | TOTAL: \$776,278 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Clark, W. B. | ARC/Stewart, J. D. | 69-Psych, NEC |

NGR 05-046-011 **San Jose State University** **1324**
Investigation of transport parameters relating to hyperfiltration for waste water purification

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 04/01/70-09/19/76 | FY76: \$35,999 | TOTAL: \$232,318 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Spitze, L. A. | ARC/Wydeven, T., Jr. | 12-Chemistry |
| Ballou, E. V. | | |

NSG 2047 **San Jose State University** **1325**
Study of planetary meteorology

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/15/74-09/14/76 | FY76: \$6,550 | TOTAL: \$24,363 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Riegel, C. A. | ARC/Reynolds, R. T. | 11-Astronomy |

NSG 2066 **San Jose State University** **1326**
The development of superoxides as improved oxygen sources for breathing apparatus

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 01/20/75-06/19/77 | FY76: \$34,454 | TOTAL: \$64,397 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Spitze, L. A. | ARC/Wydeven, T., Jr. | 12-Chemistry |
| Ballou, E. V. | | |

NSG 2090 **San Jose State University** **1327**
Oxygen effects and early biochemical evolution: acetyl-coa synthetases in yeast

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/75-05/30/77 | FY76: \$47,000 | TOTAL: \$47,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neptune, J. A. | ARC/Klein, H. P. | 51-Biology |
| Satyanarayana, T. | | |
| Volkman, C. M. | | |

NSG 2093 **San Jose State University** **1328**
Thermal stability and degradation of fire-resistant candidate polymers for aircraft interiors

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 08/01/75-07/31/76 | FY76: \$25,500 | TOTAL: \$25,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neptune, J. A. | ARC/Kourtides, D. A. | 12-Chemistry |
| Hsu, M. S. | ARC/Golub, M. A. | |

NSG 2105 **San Jose State University** **1329**
Study of toxicity of pyrolysis effluent of fire resistant polymers for aircraft interiors

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 08/01/75-04/30/77 | FY76: \$22,999 | TOTAL: \$22,999 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Young, W. | ARC/Kourtides, D. A. | 43-Chem Engr |
| Young, J. H. | ARC/Parker, J. A. | |

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NSG 2111 **San Jose State University** **1330**
Nuclear magnetic resonance study of oxidation of unsaturated elastomers

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$12,070 | TOTAL: \$12,070 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neptune, J. A. | ARC/Bolub, M. A. | 12-Chemistry |
| Rosenberg, M. L. | ARC/Parker, J. A. | |

NSG 2130 **San Jose State University** **1331**
Two-dimensional stratospheric model modification

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 02/01/76-09/30/76 | FY76: \$15,483 | TOTAL: \$15,483 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Riegel, C. A. | ARC/Whitten, R. C. | 31-Atmos Sci |
| | ARC/Reynolds, R. T. | |

NAS 1-9682 **Stanford University** **1332**
Participation in imaging planning for the Viking 1975 missions

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 03/24/70-03/31/77 | FY76: \$163,643 | TOTAL: \$446,152 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Levinthal, E. C. | LARC/Williams, T. S., Jr. | 99-Multi-Discip |
| | LARC/Glenny, W. R. | |

NAS 1-9692 **Stanford University** **1333**
Participation in the biology planning for the Viking 1975 missions

| Period | Obligations | |
|-------------------|---------------------------|-----------------|
| 04/13/70-03/31/77 | FY76: \$23,074 | TOTAL: \$45,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lederberg, J. | LARC/Williams, T. S., Jr. | 51-Biology |
| | LARC/Glenny, W. R. | |

NAS 1-9701 **Stanford University** **1334**
Participation in the radio science planning for the Viking 1975 missions

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 04/21/70-03/31/77 | FY76: \$98,646 | TOTAL: \$224,250 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Tyler, G. L. | LARC/Williams, T. S., Jr. | 45-Elec Engr |
| | LARC/Glenny, W. R. | |

NAS 2-6706 **Stanford University** **1335**
Electron microscope services

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 12/06/71-04/13/77 | FY76: \$20,000 | TOTAL: \$125,849 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bensch, K. G. | ARC/Miquel, J. | 51-Biology |

NAS 2-8898 **Stanford University** **1336**
Selected studies in research and development management techniques

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/09/75-12/09/76 | FY76: \$8,443 | TOTAL: \$63,958 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pederson, C. A. | ARC/Barnett, R. M. | 75-Political Sci |
| | ARC/Eddy, R. E. | |

NAS 2-9002 **Stanford University** **1337**
Development of control systems concept for a video internal pointing system

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/18/75-09/30/76 | FY76: \$31,556 | TOTAL: \$31,556 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Powell, J. D. | ARC/Lorell, K. R. | 45-Elec Engr |

NAS 2-9083 **Stanford University** **1338**
Study of the applicability of integrated circuit sensor technology to general aviation orientation estimation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 12/01/75-08/30/76 | FY76: \$16,463 | TOTAL: \$16,463 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Debra, D. B. | ARC/Denery, D. G. | 41-Aero Engr |

NAS 3-14336 **Stanford University** **1339**
Research for the fundamental study of full-coverage film cooling

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 07/13/71-01/12/77 | FY76: \$64,900 | TOTAL: \$265,100 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kays, W. M. | LERC/Colladay, R. S. | 41-Aero Engr |

NAS 5-10102 **Stanford University** **1340**
Radio propagation studies of the ionosphere

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/27/66-02/01/77 | FY76: | TOTAL: \$395,897 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Villard, O. G. | GSFC/Baker, J. | 45-Elec Engr |

NAS 5-20871 **Stanford University** **1341**
Experimental study of interactions in the magnetosphere between energetic particles and VLF waves

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/11/75-12/11/79 | FY76: \$241,000 | TOTAL: \$401,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Helliwell, R. A. | GSFC/Davis, M. A. | 13-Physics |

NAS 5-20987 **Stanford University** **1342**
Design study for energetic gamma ray experiment telescope

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 04/29/75-01/01/77 | FY76: | TOTAL: \$64,776 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hofstadter, R. | GSFC/Campbell, C. E. | 11-Astronomy |

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NAS 5-21960 **Stanford University** **1343**
Gravity only orbit control subsystem
Period *Obligations*
12/21/73-12/21/76 FY76: \$15,000 TOTAL: \$192,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Debra, D. B. GSFC/Lidston, J. M. 42-Astro Engr

NAS 5-23522 **Stanford University** **1344**
Radiographic applications of spatial frequency multiplexing
Period *Obligations*
06/28/76-06/27/77 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacOvski, A. GSFC/Ostrow, H. 19-Phys Sci, NEC

NAS 5-23618 **Stanford University** **1345**
Extreme ultra-violet and soft X-ray study
Period *Obligations*
06/21/76-11/05/76 FY76: \$9,000 TOTAL: \$9,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, A. B., Jr. GSFC/Weinreb, M. B. 11-Astronomy

NAS 8-31571 **Stanford University** **1346**
Structure and energy balance of coronal active regions
Period *Obligations*
02/01/76-01/31/77 FY76: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, A. B., Jr. MSFC/Bass, B. G. 13-Physics
MSFC/Hagyard, M.

NAS 8-31769 **Stanford University** **1347**
Theoretical evaluation of the response of the ionosphere to the injection of chemically reactive vapor
Period *Obligations*
12/01/75-05/31/76 FY76: \$8,000 TOTAL: \$8,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Da Rosa, A. V. MSFC/Roberts, W. T. 13-Physics

NAS 9-14716 **Stanford University** **1348**
Environmental stress and regulation of androgen secretion
Period *Obligations*
06/17/75-06/17/77 FY76: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davidson, J. M. JSC/Leach, C. S. 59-Life Sci, NEC

NASW 2916 **Stanford University** **1349**
Advanced studies in computer visual systems for exploratory vehicles
Period *Obligations*
03/01/76-02/28/77 FY76: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCarthy, J. HQ-RE/Pontious, C. E. 45-Elec Engr

NCA 2-745414 **Stanford University** **1350**
Efferent modulation of behavioral and neuronal habituation
Period *Obligations*
01/01/74-12/31/75 FY76: TOTAL: \$9,206
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pribram, K. H. ARC/Zill, L. P. 53-Other Medical

NCA 2-745418 **Stanford University** **1351**
Development of a computer-based testing program for measurement of cognitive and perceptual skills
Period *Obligations*
12/01/73-01/31/76 FY76: TOTAL: \$14,760
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Atkinson, R. C. ARC/Zill, L. P. 53-Other Medical

NCA 2-745426 **Stanford University** **1352**
Study of selected management systems
Period *Obligations*
06/15/74-06/30/75 FY76: \$90 TOTAL: \$1,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pederson, C. A. ARC/Zill, L. P. 99-Multi-Discip

NCA 2-745503 **Stanford University** **1353**
Brain serotonin and pituitary-adrenal function
Period *Obligations*
07/01/74-09/30/75 FY76: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barchas, J. D. ARC/Zill, L. P. 53-Other Medical

NCA 2-745504 **Stanford University** **1354**
In vivo determination of zone properties from mechanical measurements
Period *Obligations*
07/01/74-06/31/75 FY76: TOTAL: \$11,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steele, C. R. ARC/Zill, L. P. 53-Other Medical

NCA 2-745506 **Stanford University** **1355**
Quantum chemical calculations for prediction of mass spectra
Period *Obligations*
08/01/74-11/30/75 FY76: \$2,271 TOTAL: \$8,771
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Loew, G. B. ARC/Zill, L. P. 12-Chemistry

NCA 2-745508 **Stanford University** **1356**
Synoptic relations in the vestibulo-ocular system
Period *Obligations*
10/01/74-09/30/76 FY76: TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mathers, L. ARC/Zill, L. P. 53-Other Medical

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NCA 2-745509 **Stanford University** **1357**
Effects of states of physical activity/inactivity on hormone receptor binding

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/01/74-08/31/75 | FY76: | TOTAL: \$14,072 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reaven, G. M. | ARC/Zill, L. P. | 53-Other Medical |

NCA 2-745510 **Stanford University** **1358**
Opportunities for radio science experiments with future NASA spacecraft

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/74-09/30/75 | FY76: | TOTAL: \$14,989 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Croft, T. A. | ARC/Zill, L. P. | 42-Astro Engr |

NCA 2-745511 **Stanford University** **1359**
Angstrom-particle catalysis

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 10/01/74-09/30/75 | FY76: | TOTAL: \$5,974 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pound, G. M. | ARC/Zill, L. P. | 12-Chemistry |

NCA 2-745512 **Stanford University** **1360**
Joint use of specialized resources to support basic, exploratory and applied research in acoustics

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/01/74-10/31/75 | FY76: | TOTAL: \$53,984 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Karamcheti, K. | ARC/Zill, L. P. | 41-Aero Engr |

NCA 2-745513 **Stanford University** **1361**
Investigation of picture statistics and video compression techniques

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/74-10/31/75 | FY76: | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Peterson, A. M. | ARC/Zill, L. P. | 45-Elec Engr |

NCA 2-745514 **Stanford University** **1362**
Development of reflecting optics systems used in infrared astronomy

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 01/01/75-05/31/75 | FY76: | TOTAL: \$1,597 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ritson, D. | ARC/Zill, L. P. | 11-Astronomy |

NCA 2-745515 **Stanford University** **1363**
Studies of compiler implementation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/75-12/31/75 | FY76: | TOTAL: \$14,741 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bredt, T. H. | ARC/Zill, L. P. | 21-Mathematics |

NCA 2-745516 **Stanford University** **1364**
Analysis of visual orientation and visual effort

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/01/75-12/31/75 | FY76: | TOTAL: \$15,998 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pribram, K. H. | ARC/Zill, L. P. | 53-Other Medical |

NCA 2-745517 **Stanford University** **1365**
Infrared spectroscopy of water vapor at atmospheric and elevated temperatures

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/75-03/31/76 | FY76: | TOTAL: \$15,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mitchner, M. | ARC/Zill, L. P. | 31-Atmos Sci |

NCA 2-745518 **Stanford University** **1366**
Study of filter mechanizations for video inertia pointing system microprocessor

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 04/15/75-09/30/75 | FY76: | TOTAL: \$7,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Powell, J. D. | ARC/Zill, L. P. | 45-Elec Engr |

NCA 2-745519 **Stanford University** **1367**
New techniques for data analysis

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 04/01/75-03/31/76 | FY76: | TOTAL: \$8,600 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Petrosian, V. | ARC/Zill, L. P. | 21-Mathematics |

NCA 2-745520 **Stanford University** **1368**
Study of numerical methods for rotational flow

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/23/75-07/31/76 | FY76: | TOTAL: \$12,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oliger, J. | ARC/Zill, L. P. | 21-Mathematics |

NCA 2-745521 **Stanford University** **1369**
Hypothalamic-pituitary adrenal feedback threshold in aging

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 06/01/75-12/31/76 | FY76: \$8,000 | TOTAL: \$8,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Berger, P. A. | ARC/Zill, L. P. | 51-Biology |

NCA 2-745601 **Stanford University** **1370**
Development of a research model of the vertical motion simulator

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/75-06/30/76 | FY76: | TOTAL: \$10,326 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Debra, D. | ARC/Zill, L. P. | 46-Mech Engr |

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NCA 2-745602 **Stanford University** **1371**
Study of flow separation phenomena
Period *Obligations*
08/01/75-07/31/76 **FY76: \$15,000** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kline, S. J. ARC/Zill, L. P. 13-Physics
Mehta, U. B.

NCA 2-745603 **Stanford University** **1372**
Material movement within solid surfaces transfer processes
Period *Obligations*
09/01/75-08/31/76 **FY76: \$9,945** **TOTAL: \$9,945**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barnett, D. M. ARC/Zill, L. P. 47-Materials Engr

NCA 2-745604 **Stanford University** **1373**
Aeronautical noise studies R and D process
Period *Obligations*
10/01/75-09/30/76 **FY76: \$10,706** **TOTAL: \$10,706**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosenberg, N. ARC/Zill, L. P. 75-Political Sci

NCA 2-745605 **Stanford University** **1374**
Joint use of specialized resources in aeronautics
Period *Obligations*
11/01/75-10/31/76 **FY76: \$64,148** **TOTAL: \$64,148**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karamcheti, K. ARC/Zill, L. P. 41-Aero Engr

NCA 2-745606 **Stanford University** **1375**
Subjective evaluation of the effects of video compression techniques
Period *Obligations*
11/17/75-11/16/76 **FY76: \$8,554** **TOTAL: \$8,554**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, E. B. ARC/Zill, L. P. 45-Elec Engr

NCA 2-745607 **Stanford University** **1376**
Studies of compiler for fluid language
Period *Obligations*
01/01/76-06/30/76 **FY76: \$8,000** **TOTAL: \$8,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cerf, V. ARC/Zill, L. P. 21-Mathematics

NCA 2-745610 **Stanford University** **1377**
Development of computational tools for compressor subsonic diffuser design
Period *Obligations*
03/15/76-03/14/77 **FY76: \$14,970** **TOTAL: \$14,970**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kline, S. J. ARC/Presley, L. L. 41-Aero Engr

NCA 2-745613 **Stanford University** **1378**
Surface brightness vs. redshift in galaxy cluster
Period *Obligations*
05/15/76-05/14/77 **FY76: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Petrosian, V. ARC/Caroff, L. J. 11-Astronomy

NCA 2-745614 **Stanford University** **1379**
Analysis of multispectral scanner classification algorithms
Period *Obligations*
06/01/76-02/28/77 **FY76: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, A. M. ARC/Lumb, D. R. 49-Engr, NEC

NGL 05-020-007 **Stanford University** **1380**
Guidance and control of flight vehicles
Period *Obligations*
08/17/72-08/14/78 **FY76: \$66,000** **TOTAL: \$1,291,064**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bryson, A. E. ARC/Doolin, B. F. 49-Engr, NEC
Franklin, G. F.

NGL 05-020-008 **Stanford University** **1381**
Investigation of experimental techniques for measurement of low frequency electromagnetic phenomena in the atmosphere
Period *Obligations*
09/01/61-02/28/79 **FY76: \$140,000** **TOTAL: \$1,294,443**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helliwell, R. A. HQ-ST/Schmerling, E. R. 13-Physics
HQ-ST/Taylor, W. W.

NGL 05-020-014 **Stanford University** **1382**
Theoretical & experimental radio & radar studies of lunar, planetary ionospheres, atmospheres, & surfaces of sun & interplanetary medium
Period *Obligations*
04/30/63-09/30/78 **FY76: \$160,615** **TOTAL: \$2,658,574**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Eshleman, V. R. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NGL 05-020-103 **Stanford University** **1383**
Investigation of laser dynamics, modulation and control by means of intra-cavity time varying perturbation
Period *Obligations*
05/16/66-03/31/79 **FY76: \$70,000** **TOTAL: \$1,017,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, S. E. HQ-RE/Pontious, C. E. 45-Elec Engr
Siegman, A. E. GSFC/McAvoy, N.

NGL 05-020-134 **Stanford University** **1384**
Mass transfer to a turbulent boundary layer with step changes in boundary conditions and variable free-stream velocity
Period *Obligations*
02/24/66-06/30/76 **FY76:** **TOTAL: \$251,220**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kays, W. M. LERC/Graham, R. W. 46-Mech Engr
Moffat, R. J.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

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|---|----------------------------|----------------------|
| NGL 05-020-176 | Stanford University | 1385 |
| Investigation of space-related whistler propagation phenomena in laboratory plasmas | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/02/67-06/30/78 | FY76: \$100,000 | TOTAL: \$899,800 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Crawford, F. W. | HQ-ST/Cauffman, D. P. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

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| NGL 05-020-242 | Stanford University | 1386 |
| Research on the effects of structure upon the electronic behavior of materials | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/26/68-01/31/76 | FY76: | TOTAL: \$160,129 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Little, W. A. | HQ-RW/Weinberg, I. | 13-Physics |
| | JPL/Rembaum, A. | |

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| NGL 05-020-243 | Stanford University | 1387 |
| Refined methods of aeroelastic analysis and optimization | | |
| <i>Period</i> | <i>Obligations</i> | |
| 08/14/67-08/31/78 | FY76: \$15,000 | TOTAL: \$110,630 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ashley, H. | LARC/Doggett, R. V., Jr. | 41-Aero Engr |

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|---|----------------------------|----------------------|
| NGL 05-020-272 | Stanford University | 1388 |
| Theoretical study of the solar atmosphere and the structure of active regions | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/07/68-07/01/76 | FY76: \$70,000 | TOTAL: \$705,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sturrock, P. A. | HQ-ST/Timothy, A. F. | 13-Physics |

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|---|----------------------------|----------------------|
| NGL 05-020-305 | Stanford University | 1389 |
| Evaluation of the cardiovascular system during various circulatory stresses | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/17/68-08/31/78 | FY76: \$130,000 | TOTAL: \$1,076,032 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Harrison, D. C. | ARC/Sandler, H. | 52-Clinical Med |

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| NGL 05-020-397 | Stanford University | 1390 |
| Dynamics of mechanical systems coupled to energy sources | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/04/70-09/30/77 | FY76: | TOTAL: \$40,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Herrmann, G. | LARC/Reed, W. H., III | 41-Aero Engr |

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|--------------------------------------|----------------------------|----------------------|
| NGL 05-020-498 | Stanford University | 1391 |
| Modal suppression to flutter control | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/01/71-04/01/77 | FY76: | TOTAL: \$120,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| McIntosh, S. C., Jr. | DFRC/Kordes, E. E. | 41-Aero Engr |

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|-------------------------------------|----------------------------|----------------------|
| NGL 05-020-582 | Stanford University | 1392 |
| Abiotic origins of optical activity | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/18/72-04/30/77 | FY76: \$31,382 | TOTAL: \$188,414 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Bonner, W. A. | HQ-SB/Young, R. S. | 59-Life Sci, NEC |

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| NGR 05-020-001 | Stanford University | 1393 |
| Ionospheric research utilizing satellite radio transmissions | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/20/59-08/15/76 | FY76: \$53,295 | TOTAL: \$1,248,917 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Da Rosa, A. V. | HQ-ST/Berko, F. W. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

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| NGR 05-020-004 | Stanford University | 1394 |
| Cytochemical studies of planetary microorganisms | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/01/60-08/31/76 | FY76: \$110,000 | TOTAL: \$4,425,587 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lederberg, J. | HQ-SB/Young, R. S. | 51-Biology |
| Levinthal, E. C. | | |
| Djerassi, C. | | |

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|--|----------------------------|----------------------|
| NGR 05-020-019 | Stanford University | 1395 |
| Performance of a gyro test of general relativity in a satellite & development of associated control technology | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/11/75-09/01/76 | FY76: \$352,000 | TOTAL: \$3,511,075 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Fairbank, W. M. | MSFC/Potter, R. A. | 13-Physics |
| Everitt, C. W. | MSFC/Decher, R. | |
| Debra, D. B. | | |

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| NGR 05-020-345 | Stanford University | 1396 |
| Research in remote control | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/09/69-10/31/76 | FY76: \$28,730 | TOTAL: \$155,785 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Thompson, D. A. | ARC/Jones, J. L. | 49-Engr, NEC |
| Verplank, W. L. | ARC/Quattrone, P. D. | |

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| NGR 05-020-405 | Stanford University | 1397 |
| Electronic properties of hydrogen cyanide and its polymers of pyrroles and ferric porphyrins | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/11/70-11/31/76 | FY76: \$14,216 | TOTAL: \$80,156 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Loew, G. H. | ARC/Chang, S. | 12-Chemistry |
| | ARC/Kvenvolden, K. A. | |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGR 05-020-407 **Stanford University** **1398**
Analysis of solar wind structural data acquired from Pioneer and Mariner spacecraft
Period *Obligations*
12/14/70-02/28/76 **FY76:** **TOTAL: \$290,606**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Croft, T. A. HQ-ST/Cauffman, D. P. 19-Phys Sci, NEC
HQ-ST/Schmerling, E. R.

NGR 05-020-435 **Stanford University** **1399**
Neuronal analysis of visual perception
Period *Obligations*
01/01/70-02/01/77 **FY76: \$5,000** **TOTAL: \$33,845**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chow, K. L. ARC/Mehler, W. R. 59-Life Sci, NEC

NGR 05-020-452 **Stanford University** **1400**
Instrumentation study development for high energy physics experiment in space
Period *Obligations*
06/09/70-06/30/76 **FY76: \$280,000** **TOTAL: \$1,127,941**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hofstadter, R. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

NGR 05-020-456 **Stanford University** **1401**
Effects of altered gravitational stress on fluid balance and circulation of blood
Period *Obligations*
05/13/70-09/30/76 **FY76: \$45,000** **TOTAL: \$257,090**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Luetscher, J. A. ARC/Danellis, J. V. 52-Clinical Med
Goldman, R. H. ARC/Sandler, H.

NGR 05-020-510 **Stanford University** **1402**
Galactic and extra galactic infrared line emission
Period *Obligations*
03/31/71-03/30/76 **FY76: \$7,500** **TOTAL: \$75,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Petrosian, V. HQ-SA/Boggess, N. W. 11-Astronomy
HQ-SA/Roman, N. G.

NGR 05-020-559 **Stanford University** **1403**
Structure of solar magnetic and velocity fields
Period *Obligations*
03/22/72-06/30/76 **FY76: \$66,000** **TOTAL: \$366,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, J. M. HQ-SA/Jordan, S. D. 11-Astronomy

NGR 05-020-615 **Stanford University** **1404**
Ultrasonic Doppler measurement of renal artery blood flow
Period *Obligations*
05/26/72-08/25/76 **FY76: \$100,000** **TOTAL: \$416,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beaver, W. L. ARC/Sandler, H. 53-Other Medical
Meindl, J. D.

NGR 05-020-622 **Stanford University** **1405**
Computation of turbulent flows
Period *Obligations*
07/20/72-07/31/76 **FY76: \$51,205** **TOTAL: \$202,637**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reynolds, W. C. ARC/Rubenstein, M. W. 47-Materials Engr
Ferziger, J. H. ARC/Marvin, J. G.

NGR 05-020-632 **Stanford University** **1406**
Analytical methodology for biochemical monitoring
Period *Obligations*
05/29/73-12/31/76 **FY76: \$15,000** **TOTAL: \$195,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lederberg, J. JSC/Rummel, J. A. 53-Other Medical

NGR 05-020-634 **Stanford University** **1407**
Biomedical technology transfer
Period *Obligations*
12/07/72-09/30/76 **FY76: \$200,000** **TOTAL: \$653,503**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 52-Clinical Med
Miller, H. A. ARC/McCutcheon, E. P.

NGR 05-020-649 **Stanford University** **1408**
Study of lunar and planetary surfaces
Period *Obligations*
03/06/73-12/31/76 **FY76: \$16,900** **TOTAL: \$67,170**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Howard, H. T. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NGR 05-020-668 **Stanford University** **1409**
Magnetosphere structure and radiation mechanisms on pulsars
Period *Obligations*
11/01/73-10/31/77 **FY76: \$25,000** **TOTAL: \$73,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sturrock, P. A. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

NGR 05-020-671 **Stanford University** **1410**
Mechanical behavior of dispersion-strengthened materials at elevated temperatures
Period *Obligations*
06/05/73-12/31/76 **FY76:** **TOTAL: \$64,259**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sherby, O. D. LERC/Whittenberger, J. D. 47-Materials Engr

NGR 05-020-676 **Stanford University** **1411**
Research program in acoustics
Period *Obligations*
07/01/73-06/30/76 **FY76:** **TOTAL: \$150,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Karamcheti, K. ARC/Hickey, D. H. 13-Physics

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 2085 **Stanford University** **1426**
Aerothermodynamic heat-shield environments
Period *Obligations*
09/15/75-09/14/76 FY76: \$38,780 TOTAL: \$38,780
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bershades, D. ARC/Howe, J. T. 42-Astro Engr
Lasher, L./Nachtsheim,
P. R.

NSG 2092 **Stanford University** **1427**
In vivo determination of bone properties from mechanical measurements
Period *Obligations*
07/01/75-09/30/76 FY76: \$22,963 TOTAL: \$22,963
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steele, C. R. ARC/Young, D. R. 53-Other Medical

NSG 2100 **Stanford University** **1428**
Control methods for aiding a pilot during STOL engine-out transients
Period *Obligations*
08/01/75-07/31/77 FY76: \$18,934 TOTAL: \$18,934
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Debra, D. B. ARC/Franklin, J. A. 41-Aero Engr
Ashley, H.
Yson, B. R.

NSG 2102 **Stanford University** **1429**
Effects of wavelength, temperature, structure and impurities in subliming volume reflectors in convective and intense radiative environments
Period *Obligations*
09/15/75-09/14/76 FY76: \$24,090 TOTAL: \$24,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bates, C. W. ARC/Nachtsheim, P. R. 47-Materials Engr
ARC/Howe, J. T.

NSG 2121 **Stanford University** **1430**
Preliminary design and computer simulation of a very large Fourier transform processor for the interstellar search system
Period *Obligations*
01/01/76-12/31/76 FY76: \$29,037 TOTAL: \$29,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, A. M. ARC/Billingham, J. 49-Engr, NEC
Despain, A. M. ARC/Wolfe, J. H.

NSG 2132 **Stanford University** **1431**
Study of lower body negative pressure
Period *Obligations*
02/01/76-01/31/77 FY76: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrison, D. C. ARC/Sandler, H. 52-Clinical Med

NSG 2141 **Stanford University** **1432**
Effects of bedrest and inactivity on insulin binding to receptors and insulin action
Period *Obligations*
04/01/76-03/31/77 FY76: \$11,831 TOTAL: \$11,831
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Olefsky, J. M. ARC/Dolkas, C. B. 52-Clinical Med
Reaven, G. M.

NSG 2161 **Stanford University** **1433**
Structure elucidation of plasma polymerized perfluorobutene-2 by nuclear magnetic resonance studies
Period *Obligations*
06/01/76-02/28/77 FY76: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brauman, J. I. ARC/Wydeven, T., Jr. 12-Chemistry
Naar, C.

NSG 4002 **Stanford University** **1434**
Theoretical and experimental investigations in the control of aircraft
Period *Obligations*
09/01/74-08/31/78 FY76: \$70,000 TOTAL: \$190,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bryson, A. E. DFRC/Deets, D. A. 41-Aero Engr
Debra, D. B. DFRC/Kordes, E. E.
Powell, J. D.

NSG 5024 **Stanford University** **1435**
Relation of the observed far ultraviolet solar irradiance to the solar magnetic sector structure
Period *Obligations*
09/01/74-09/30/75 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, J. M. GSFC/Heath, D. F. 31-Atmos Sci

NSG 5050 **Stanford University** **1436**
Field measurements for heat capacity mapping
Period *Obligations*
03/01/75-05/31/76 FY76: \$3,758 TOTAL: \$43,553
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lyon, R. J. GSFC/Schutt, J. B. 32-Geological Sci

NSG 7029 **Stanford University** **1437**
Radar data from the moon
Period *Obligations*
04/01/74-06/30/76 FY76: TOTAL: \$121,545
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tyler, G. L. HQ-SL/Williams, R. J. 32-Geological Sci

NSG 7092 **Stanford University** **1438**
Energy release in solar flares based on OSO-5 data
Period *Obligations*
10/01/74-09/30/76 FY76: \$40,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jordan, T. H. HQ-ST/Timothy, A. F. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NSG 7099 **Stanford University** **1439**
Structure and energy balance of coronal active regions
Period *Obligations*
10/29/74-01/31/76 **FY76:** **TOTAL: \$55,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, A. B., Jr. HQ-ST/Timothy, A. F. 11-Astronomy

NSG 7110 **Stanford University** **1440**
Investigation of laser particle accelerators
Period *Obligations*
02/06/75-12/31/76 **FY76: \$50,000** **TOTAL: \$100,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pantell, R. H. HQ-RR/Thom, K. 13-Physics
ARC/Billman, K. W.

NSG 7117 **Stanford University** **1441**
A study of seismic velocity electrical conductivity and the state of the lunar crust
Period *Obligations*
03/01/75-02/28/77 **FY76: \$29,968** **TOTAL: \$76,520**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nur, A. M. HQ-SL/Williams, R. J. 32-Geological Sci
HQ-SL/Flinn, E. A.

NAS 5-20079 **University of California - Berkeley** **1442**
Energetic particles flux experiment for International Sun/Earth Explorer mother & daughter spacecraft
Period *Obligations*
05/23/74-10/30/79 **FY76: \$398,000** **TOTAL: \$821,152**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. A. GSFC/Davis, M. A. 13-Physics

NAS 5-20080 **University of California - Berkeley** **1443**
Quasi-electric fields experiment for ISEE mother/daughter spacecraft
Period *Obligations*
05/21/74-10/31/79 **FY76: \$218,000** **TOTAL: \$434,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mozer, F. S. GSFC/Davis, M. A. 13-Physics

NAS 5-20838 **University of California - Berkeley** **1444**
Data reduction and analysis of data from IMP I solar particle experiment
Period *Obligations*
02/19/75-12/31/75 **FY76:** **TOTAL: \$55,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. A. GSFC/Davis, M. A. 13-Physics

NAS 5-20969 **University of California - Berkeley** **1445**
ERTS data follow-on investigation
Period *Obligations*
04/15/75-07/15/76 **FY76:** **TOTAL: \$80,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colwell, R. N. GSFC/Stonesifer, G. R. 32-Geological Sci

NAS 5-20995 **University of California - Berkeley** **1446**
Isotopic composition of primary cosmic rays H thru FE for ISEE C spacecraft
Period *Obligations*
03/19/75-07/31/80 **FY76: \$774,000** **TOTAL: \$864,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heckman, H. GSFC/Davis, M. A. 13-Physics

NAS 5-22307 **University of California - Berkeley** **1447**
Solar X-ray and interplanetary and solar electrons for the ISEE-C
Period *Obligations*
04/11/75-07/30/80 **FY76: \$552,000** **TOTAL: \$582,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, K. A. GSFC/Gallagher, W. F. 32-Geological Sci

NAS 8-29603 **University of California - Berkeley** **1448**
Trans-uranic cosmic ray flight experiment
Period *Obligations*
03/13/73-06/30/76 **FY76: \$76,000** **TOTAL: \$260,738**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Price, P. B. MSFC/Ondrak, B. T. 13-Physics

NAS 8-31346 **University of California - Berkeley** **1449**
Feasibility of coherent and incoherent backscatter experiments from the AMPS laboratory
Period *Obligations*
03/01/75-12/21/76 **FY76:** **TOTAL: \$30,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mozel, F. S. MSFC/Roberts, W. T. 19-Phys Sci, NEC
MSFC/Chappell, C. R.

NAS 9-14419 **University of California - Berkeley** **1450**
Agriculture interpretative technique development using Skylab/ EREP data
Period *Obligations*
10/01/74-09/30/76 **FY76: \$3,500** **TOTAL: \$51,960**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colwell, R. N. JSC/Forbes, C. D. 39-Env Sci, NEC

NAS 9-14452 **University of California - Berkeley** **1451**
Forestry applications research on timber resources
Period *Obligations*
11/15/74-07/31/76 **FY76: \$75,000** **TOTAL: \$173,775**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lauer, D. JSC/Patteson, A. W. 39-Env Sci, NEC
Nichols, J. JSC/Weitz, P. J.

NAS 9-14565 **University of California - Berkeley** **1452**
Study development of improved photointerpretative techniques to wheat identification
Period *Obligations*
05/15/75-11/14/76 **FY76: \$75,000** **TOTAL: \$255,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colwell, R. N. JSC/Garcia, J. G. 39-Env Sci, NEC
Thomas, R. W. JSC/Feiveson, A. H.
Hall, C. M.

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-50302 **University of California - Berkeley** **1453**
Use of campus facilities
Period *Obligations*
07/01/72-07/31/75 FY76: \$2,660 TOTAL: \$34,580
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sherman, F. S. ARC/Zill, L. P. 32-Geological Sci

NCA 2-50509 **University of California - Berkeley** **1460**
Studies on the lactogenic activity of human plasma fractions
Period *Obligations*
04/01/75-03/31/76 FY76: TOTAL: \$13,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nicoll, C. S. ARC/Zill, L. P. 51-Biology

NCA 2-50406 **University of California - Berkeley** **1454**
Design and laboratory testing of electromagnet systems
Period *Obligations*
01/01/74-06/30/77 FY76: \$2,000 TOTAL: \$6,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Angelakos, D. J. ARC/Zill, L. P. 45-Elec Engr

NCA 2-50510 **University of California - Berkeley** **1461**
Electron beam surface analysis
Period *Obligations*
03/15/75-04/30/76 FY76: TOTAL: \$9,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Everhart, T. E. ARC/Zill, L. P. 47-Materials Engr

NCA 2-50501 **University of California - Berkeley** **1455**
Electronic beam surface analysis of inorganic and organic materials
Period *Obligations*
07/01/74-06/30/75 FY76: TOTAL: \$9,907
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Everhart, T. E. ARC/Zill, L. P. 47-Materials Engr

NCA 2-50603 **University of California - Berkeley** **1462**
Investigations into management and personnel requirements for hazardous waste disposal
Period *Obligations*
07/01/75-06/30/76 FY76: \$20,705 TOTAL: \$20,705
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Laporte, T. ARC/Zill, L. P. 75-Political Sci

NCA 2-50502 **University of California - Berkeley** **1456**
Legal aspects of remote sensing technology
Period *Obligations*
09/01/74-06/30/76 FY76: TOTAL: \$26,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buxbaum, R. M. ARC/Zill, L. P. 75-Political Sci

NCA 2-50605 **University of California - Berkeley** **1463**
Surface analysis of materials
Period *Obligations*
05/01/76-04/30/77 FY76: \$5,500 TOTAL: \$5,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Everhart, T. E. HQ-/Poppa, H. R. 47-Materials Engr

NCA 2-50503 **University of California - Berkeley** **1457**
Full flight simulation incorporating tasks that cause pilot error
Period *Obligations*
11/01/74-10/31/75 FY76: TOTAL: \$9,944
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Postman, L. J. ARC/Zill, L. P. 41-Aero Engr
Rosch, E.

NCA 2-50606 **University of California - Berkeley** **1464**
Detection of fine structure lines from H-II region
Period *Obligations*
04/01/76-12/31/76 FY76: \$16,661 TOTAL: \$16,661
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gaustad, J. HQ-/Ericson, E. F. 11-Astronomy

NCA 2-50504 **University of California - Berkeley** **1458**
Optimized experiment for measuring prezmagnetic signals of ecological origin
Period *Obligations*
10/15/74-09/30/75 FY76: TOTAL: \$3,740
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhattacharyya, B. K. ARC/Zill, L. P. 49-Engr, NEC

NCA 2-50607 **University of California - Berkeley** **1465**
Utilization of light energy by halobacterium halobium
Period *Obligations*
06/01/76-05/31/77 FY76: \$7,400 TOTAL: \$7,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Packer, L. ARC/Lanyi, J. K. 51-Biology

NCA 2-50508 **University of California - Berkeley** **1459**
Motivational factors in detection, multi-source monitoring and human tracking
Period *Obligations*
02/01/75-01/31/76 FY76: TOTAL: \$7,076
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hafter, E. R. ARC/Zill, L. P. 69-Psych, NEC

NGL 05-003-003 **University of California - Berkeley** **1466**
Study of extraterrestrial life using reflection spectra as a basis
Period *Obligations*
08/01/60-10/31/78 FY76: \$180,000 TOTAL: \$3,578,081
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Calvin, M. HQ-SB/Young, R. S. 32-Geological Sci
Weaver, H.
Burlingame, A. L.

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGL 05-003-017 **University of California - Berkeley** **1467**
Investigation of high energy solar flare radiation & trapped radiation, including balloon-borne & sounding rocket tests of prototype detectors

| Period | Obligations |
|-------------------|---|
| 04/08/63-01/31/79 | FY76: \$115,000 TOTAL: \$1,762,942 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Anderson, K. A. | HQ-ST/Schmerling, E. R. 19-Phys Sci, NEC |
| | HQ-ST/Taylor, W. W. |

NGL 05-003-024 **University of California - Berkeley** **1468**
Primate hemodynamics and metabolism under conditions of weightlessness

| Period | Obligations |
|-------------------|---------------------------------------|
| 08/01/63-06/30/76 | FY76: \$130,000 TOTAL: \$2,876,374 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Pace, N. | ARC/Quattrone, P. D. 59-Life Sci, NEC |
| | ARC |

NGL 05-003-272 **University of California - Berkeley** **1469**
Research on radiation physics

| Period | Obligations |
|-------------------|-------------------------------------|
| 03/01/68-02/28/78 | FY76: \$70,000 TOTAL: \$826,380 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Townes, C. H. | HQ-SA/Bogges, N. W. 11-Astronomy |
| Chiao, R. Y. | HQ-SA/Roman, N. G. |

NGL 05-003-286 **University of California - Berkeley** **1470**
Orbiting spacecraft infrared spectrometer development for terrestrial and laboratory study of planetary atmospheres

| Period | Obligations |
|-------------------|--------------------------------------|
| 08/08/68-08/31/78 | FY76: \$75,891 TOTAL: \$927,395 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Pimental, G. C. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. |

NGL 05-003-404 **University of California - Berkeley** **1471**
Integrated study of earth resources in the State of California using remote sensing techniques

| Period | Obligations |
|-------------------|---------------------------------------|
| 07/13/70-04/30/79 | FY76: \$410,000 TOTAL: \$3,910,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Colewell, R. N. | HQ-P/Vitale, J. A. 39-Env Sci, NEC |

NGL 05-003-409 **University of California - Berkeley** **1472**
Lunar sample analysis

| Period | Obligations |
|-------------------|-------------------------------------|
| 01/26/71-01/31/79 | FY76: \$98,670 TOTAL: \$629,083 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Reynolds, J. H. | JSC/Harris, J. W. 13-Physics |

NGL 05-003-410 **University of California - Berkeley** **1473**
Lunar sample analysis

| Period | Obligations |
|-------------------|-------------------------------------|
| 02/22/71-01/31/79 | FY76: \$120,000 TOTAL: \$724,795 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Price, P. B. | JSC/Harris, J. W. 12-Chemistry |

NGL 05-003-497 **University of California - Berkeley** **1474**
Research in space sciences

| Period | Obligations |
|-------------------|---------------------------------------|
| 04/05/72-03/31/79 | FY76: \$200,000 TOTAL: \$1,000,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Anderson, K. A. | HQ-P/Carter, C. H. 99-Multi-Discip |

NGR 05-003-239 **University of California - Berkeley** **1475**
Auroral zone rocket studies of electric fields and precipitating particles

| Period | Obligations |
|-------------------|--|
| 08/26/68-10/31/76 | FY76: \$147,000 TOTAL: \$782,811 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Moser, F. S. | GSFC/Bissell, E. E., Jr. 13-Physics |
| Anderson, K. A. | |

NGR 05-003-309 **University of California - Berkeley** **1476**
Non-gravitational forces of periodic comets

| Period | Obligations |
|-------------------|-------------------------------------|
| 10/20/70-06/30/75 | FY76: TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Cunningham, L. E. | HQ-SL/Donn, B. D. 31-Atmos Sci |

NGR 05-003-376 **University of California - Berkeley** **1477**
High resolution studies of cosmic rays and solar particles

| Period | Obligations |
|-------------------|-------------------------------------|
| 04/16/71-09/30/77 | FY76: \$118,000 TOTAL: \$428,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Price, P. B. | HQ-SA/Sofia, S. 11-Astronomy |

NGR 05-003-435 **University of California - Berkeley** **1478**
Lunar sample analysis

| Period | Obligations |
|-------------------|-------------------------------------|
| 04/01/71-01/31/77 | FY76: TOTAL: \$1,184,800 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Burlingame, A. L. | JSC/Harris, J. W. 13-Physics |

NGR 05-003-450 **University of California - Berkeley** **1479**
Study of X-ray emission from galactic and extragalactic sources with emphasis on soft and ultra-soft wavelengths

| Period | Obligations |
|-------------------|--|
| 05/28/71-10/31/76 | FY76: \$130,339 TOTAL: \$741,203 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Bowyer, C. S. | GSFC/Bissell, E. E., Jr. 11-Astronomy |
| | HQ-SA/Opp, A. G. |

NGR 05-003-451 **University of California - Berkeley** **1480**
Research in aeronautics & air transportation

| Period | Obligations |
|-------------------|-------------------------------------|
| 03/30/71-03/15/77 | FY76: \$3,000 TOTAL: \$400,393 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Holt, M. | ARC/Chapman, G. T. 41-Aero Engr |
| Sherman, F. S. | ARC/Pfyl, F. A. |
| Talbot, L. | |

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGR 05-003-452 University of California - Berkeley 1481
Infrared spectra of planetary atmospheres

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 02/18/72-06/30/77 | FY76: | TOTAL: \$168,020 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Townes, C. H. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NGR 05-003-460 University of California - Berkeley 1482
The chemistry of living systems

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 07/21/71-10/31/77 | FY76: \$75,000 | TOTAL: \$400,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Jukes, J. H. | HQ-SB/Young, R. S. | 12-Chemistry |

NGR 05-003-470 University of California - Berkeley 1483
In vivo measurement of human body measurements

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/11/72-04/30/76 | FY76: \$30,000 | TOTAL: \$296,508 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pace, N. | ARC/Newsom, B. D. | 59-Life Sci, NEC |
| | ARC/Sandler, H. | |

NGR 05-003-471 University of California - Berkeley 1484
Sociopolitical assessment of advanced technology

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/21/71-08/31/76 | FY76: \$22,381 | TOTAL: \$283,150 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Laporte, T. | ARC/Tanner, T. A. | 79-Soc Sci, NEC |

NGR 05-003-510 University of California - Berkeley 1485
OGO-5 solar X-ray measurements and related solar flare emissions

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 11/17/72-06/30/76 | FY76: | TOTAL: \$45,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Anderson, K. A. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NGR 05-003-511 University of California - Berkeley 1486
Spectrographic observation of infrared lines

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 03/01/73-08/31/76 | FY76: \$60,000 | TOTAL: \$165,005 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Townes, C. H. | ARC/Cameron, R. M. | 11-Astronomy |
| | ARC/Gillespie, C. M., Jr. | |

NGR 05-003-513 University of California - Berkeley 1487
Heavy ion fragment experiments at the Bevatron

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/01/73-09/30/76 | FY76: \$120,000 | TOTAL: \$375,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Heckman, H. H. | HQ-SA/Sofia, S. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

NGR 05-003-553 University of California - Berkeley 1488
High energy primary cosmic radiation measured by superconducting magnetic spectrometer

| Period | Obligations | |
|-------------------|--------------------|--------------------|
| 05/10/73-12/31/76 | FY76: \$375,082 | TOTAL: \$1,050,164 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Alvarez, L. W. | HQ-SA/Sofia, S. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

NGR 05-003-559 University of California - Berkeley 1489
Metal barrier metal optical diodes

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 03/19/73-05/01/76 | FY76: | TOTAL: \$108,024 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gustafson, T. K. | ARC/Billman, K. W. | 45-Elec Engr |
| | ARC/Hansen, C. F. | |

NGR 05-003-562 University of California - Berkeley 1490
Research on iron base alloys with superior strength and fracture toughness for use at cryogenic temperatures

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 08/15/73-10/15/76 | FY76: \$35,000 | TOTAL: \$96,263 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Morris, J. W. | LERC/Stephens, J. R. | 47-Materials Engr |
| Zackay, V. F. | | |
| Parker, E. R. | | |

NGR 05-003-578 University of California - Berkeley 1491
Theoretical X-ray and gamma-ray astronomy

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 08/01/73-08/31/76 | FY76: \$30,000 | TOTAL: \$91,544 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Silk, J. I. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |
| Arons, J. | HQ-SA/Roman, N. G. | |

NGR 05-003-587 University of California - Berkeley 1492
Investigation of strong features in the spectrum of procyon

| Period | Obligations | |
|-------------------|-----------------------|---------------|
| 12/01/73-05/30/75 | FY76: | TOTAL: \$545 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Spinrad, H. | GSFC/Kupperian, J. E. | 11-Astronomy |

NSG 2003 University of California - Berkeley 1493
Remote sensing and large-scale movements of nuisance algal blooms in eutrophic water bodies

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/15/74-03/31/77 | FY76: \$10,000 | TOTAL: \$54,503 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Horne, A. J. | ARC/Wrigley, R. C. | 39-Env Sci, NEC |

NSG 2026 University of California - Berkeley 1494
Fire testing of aircraft interiors

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 05/01/74-04/14/77 | FY76: \$26,500 | TOTAL: \$176,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Williamson, R. B. | ARC/Kourtides, D. A. | 44-Civil Engr |
| Hasegawa, H. | | |

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NSG 2043 **University of California - Berkeley** **1495**
Preparation of composite reverse osmosis membranes by plasma polymerization

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 10/01/74-10/01/76 | FY76: \$15,000 | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bell, A. T. | ARC/Wydeven, T., Jr. | 43-Chem Engr |
| Kanafani, A. | ARC/Burrous, C. N. | |

NSG 2084 **University of California - Berkeley** **1496**
Study of the thermal degradation of polymers under laser simulated environments

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 06/09/75-07/30/76 | FY76: | TOTAL: \$23,181 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Williamson, R. B. | ARC/Riccitiello, S. R. | 12-Chemistry |
| Lopata, E. S. | ARC/Parker, J. A. | |

NSG 2110 **University of California - Berkeley** **1497**
Towing of aircraft models

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$16,000 | TOTAL: \$16,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wehausen, J. V. | ARC/Ciffone, D. L. | 41-Aero Engr |
| | ARC/Kelly, M. W. | |

NSG 2125 **University of California - Berkeley** **1498**
Aether drift and the isotropy of the universe

| Period | Obligations | |
|-----------------------|--------------------|-----------------|
| 10/01/75-09/31/76 | FY76: \$47,000 | TOTAL: \$47,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Muller, R. A. | ARC/Cameron, R. M. | 11-Astronomy |
| Alvarez, L. W. | | |
| Gillespie, C. M., Jr. | | |

NSG 2127 **University of California - Berkeley** **1499**
An investigation of sources of information on short haul air passengers

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/76-01/31/77 | FY76: \$33,048 | TOTAL: \$33,048 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Horonjeff, R. | ARC/Waters, M. H. | 41-Aero Engr |
| Kanafani, A. | | |

NSG 2133 **University of California - Berkeley** **1500**
Development of an operational scenario for intra-regional air service

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 01/01/76-08/01/76 | FY76: \$6,240 | TOTAL: \$6,240 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Horonjeff, R. | ARC/Waters, M. H. | 41-Aero Engr |
| | ARC/Bowles, J. V. | |

NSG 2151 **University of California - Berkeley** **1501**
Infrared and optical tunneling junctions

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/01/76-04/30/77 | FY76: \$39,500 | TOTAL: \$39,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gustafson, T. K. | ARC/Billman, K. W. | 13-Physics |
| | ARC/Lee, G. | |

NSG 2160 **University of California - Berkeley** **1502**
Investigations of the regulatory environment for operation of hazardous waste disposal in space

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/01/76-06/30/76 | FY76 \$2,913 | TOTAL: \$2,913 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Laporte, T. | ARC/Wood, R. D. | 39-Env Sci, NEC |

NSG 3028 **University of California - Berkeley** **1503**
Techniques for stabilization of lean combustion systems

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 07/01/74-09/31/76 | FY76: \$99,803 | TOTAL: \$172,183 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Branch, M. C. | LERC/Marek, C. J. | 46-Mech Engr |
| Oppenheim, A. K. | LERC/Grobman, J. S. | |
| Sawyer, R. F. | | |

NSG 5057 **University of California - Berkeley** **1504**
X-ray observations of lacertids from OAO Copernicus

| Period | Obligations | |
|-------------------|-----------------------|----------------|
| 03/01/75-02/29/76 | FY76: | TOTAL: \$8,505 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bowyer, C. S. | GSFC/Kupperian, J. E. | 11-Astronomy |

NSG 5093 **University of California - Berkeley** **1505**
Microwave scattering properties of snow fields

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/01/76-01/31/77 | FY76: \$31,000 | TOTAL: \$31,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Angelakos, D. J. | GSFC/Chang, T. C. | 49-Engr, NEC |
| | GSFC/Shiue, J. C. | |

NSG 7127 **University of California - Berkeley** **1506**
Mapping lunar surface remanent magnetic fields to develop the theory of solar winds cavity

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 03/25/75-02/28/78 | FY76: \$83,145 | TOTAL: \$133,145 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Anderson, K. A. | HQ-SL/Williams, R. J. | 39-Env Sci, NEC |
| | HQ-SL/Flinn, E. A. | |

NSG 7139 **University of California - Berkeley** **1507**
Pulse resolved spectrophotometry of Hz Hercules

| Period | Obligations | |
|-------------------|------------------------|----------------|
| 05/01/75-04/30/76 | FY76: | TOTAL: \$4,340 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bowyer, C. S. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NSG 7152 **University of California - Berkeley** **1508**
Studies of solar system objects with the new hat creek millimeter
wave length radio interferometer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/75-06/30/76 | FY76: \$34,429 | TOTAL: \$34,429 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Silver, S. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. E. | |

NSG 7205 University of California - Berkeley 1509
Far infrared all-sky survey

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/76-01/31/77 | FY76: \$20,000 | TOTAL: \$20,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Richards, P. L. | HQ-SA/Bogges, N. W. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NSG 7220 University of California - Berkeley 1510
Remote sensing to selected problems within the State of
California

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/76-04/30/79 | FY76: \$90,000 | TOTAL: \$90,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Colwell, R. N. | HQ-P/Vitale, J. A. | 39-Env Sci, NEC |

NAS 2-8685 University of California - Davis 1511
Study on amino acid metabolism in higher plants

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 01/22/75-10/31/76 | FY76: \$12,500 TOTAL: \$37,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Mazelis, M. | ARC/Taketa, S. T. 51-Biology |

NAS 3-19850 University of California - Davis 1512
X-ray fluorescence analysis

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/03/75-07/03/76 | FY76: \$16,000 | TOTAL: \$16,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cahill, T. | LERC/King, R. B. | 47-Materials Engr |

NAS 5-22964 University of California - Davis 1513
Nimbus-G experiment team support for earth radiation budget

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/18/76-02/18/79 | FY76: \$15,599 | TOTAL: \$15,599 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Coulson, K. L. | GSFC/Nelson, D. | 41-Aero Engr |

NAS 9-13589 University of California - Davis 1514
Study of bone mineral measurement. Medical experiment M-078

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/02/73-10/31/76 | FY76: \$56,700 | TOTAL: \$187,865 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Vogel, J. M. | JSC/Smith, M. C., Jr. | 52-Clinical Med |
| | JSC/Wheeler, H. O. | |

NAS 9-14696 University of California - Davis 1515
Development of a character line and point display system

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 07/25/75-11/30/76 | FY76: \$13,000 | TOTAL: \$13,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Owens, E. W. | JSC/Huffstetler, W. J. | 45-Elec Engr |

NCA 2-180501 University of California - Davis 1516
Measurement of kinetics for chemisorption of a gas

| <i>Period</i> | <i>Obligations</i> |
|----------------------|---------------------------|
| 01/01/75-07/31/76 | FY76: TOTAL: \$12,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Baldwin, R. L. | ARC/Zill, L. P. |
| | CASE Category |
| | 53-Other Medical |

NCA 2-180502 University of California - Davis 1517
Development of a computer program based on the empirical
pseudo-potential method

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 04/01/75-03/31/76 | FY76: TOTAL: \$4,958 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Fong, C. Y. | ARC/Zill, L. P. 21-Mathematics |

NCA 2-180503 University of California - Davis 1518
Low density experimental threshold determination

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 06/01/75-05/30/76 | FY76: TOTAL: \$4,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| White, B. R. | ARC/Zill, L. P. 41-Aero Engr |

NCA 2-180504 University of California - Davis 1519
Analysis of EEG and other physiological data

| <i>Period</i> | <i>Obligations</i> |
|----------------------|---------------------------|
| 01/01/75-12/31/75 | FY76: TOTAL: \$13,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Chapman, L. F. | ARC/Zill, L. P. |
| | <i>CASE Category</i> |
| | 61-Biol Aspects |

NCA 2-180505 University of California - Davis 1520
Blood protein and red cell turnover rate studies in dogs

| <i>Period</i> | <i>Obligations</i> |
|----------------------|---------------------------|
| 05/01/75-03/01/76 | FY76: TOTAL: \$6,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Evans, J. W. | ARC/Zill, L. P. |
| | <i>CASE Category</i> |
| | 51-Biology |

NCA 2-180506 University of California - Davis 1521
Human performance under selected environmental stresses

| <i>Period</i> | <i>Obligations</i> |
|----------------------|---------------------------|
| 05/15/75-12/31/75 | FY76: TOTAL: \$10,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Bernauer, E. M. | ARC/Zill, L. P. |
| | <i>CASE Category</i> |
| | 61-Biol Aspects |

NCA 2-180601 University of California - Davis 1522
Human performance under selected environmental stresses

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/01/76-12/31/76 | FY76: \$5,500 | TOTAL: \$5,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Bernauer, E. M. | ARC/Zill, L. P. | 52-Clinical Med |

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NCA 2-180605 **University of California - Davis** **1523**
Particle movement of simulated Mars surface material
Period *Obligations*
06/01/76-07/15/77 FY76: \$5,225 TOTAL: \$5,225
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, B. R. HQ/Pollack, J. B. 32-Geological Sci

NCA 2-180607 **University of California - Davis** **1524**
Investigations into the prediction of soil moisture
Period *Obligations*
03/01/76-02/28/78 FY76: \$7,000 TOTAL: \$7,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hatfield, J. L. ARC/Millard, J. 32-Geological Sci

NGL 05-004-008 **University of California - Davis** **1525**
Physiological effects of chronic acceleration
Period *Obligations*
03/01/65-01/31/79 FY76: \$35,000 TOTAL: \$815,797
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, A. H. ARC/Oyama, J. 51-Biology

NGR 05-004-006 **University of California - Davis** **1526**
Self-consistent study of trapped radiation in the geomagnetic field
Period *Obligations*
02/01/66-02/01/77 FY76: TOTAL: \$19,177
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIlwain, C. E. HQ-ST/Schmerling, E. R. 32-Geological Sci

NGR 05-004-099 **University of California - Davis** **1527**
Investigation of the effect of altered gravity on temperature regulation in mammals
Period *Obligations*
11/20/73-11/19/76 FY76: \$15,000 TOTAL: \$44,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Horowitz, J. M. ARC/Holton, E. M. 51-Biology

NSG 5092 **University of California - Davis** **1528**
Use of remote data in hydrologic engineering models
Period *Obligations*
02/01/76-10/31/76 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Algazi, V. R. GSFC/Salomonson, V. V. 39-Env Sci, NEC

NGR 05-041-012 **University of California - Irvine** **1529**
Diagnosis of preclinical viral illness and prophylaxis against viral disease
Period *Obligations*
07/13/71-11/31/76 FY76: \$35,000 TOTAL: \$174,342
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tilles, J. G. ARC/Mandel, A. D. 52-Clinical Med

NSG 7208 **University of California - Irvine** **1530**
Gas phase reactions of chlorine and fluorine compounds of interest for stratospheric chemistry
Period *Obligations*
01/01/76-09/30/76 FY76: \$59,720 TOTAL: \$59,720
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Molina, M. J. HQ-SU/Reed, E. F. 31-Atmos Sci

C-80166C **University of California - Los Angeles** **1531**
Testing of various substrates
Period *Obligations*
02/19/76-04/20/76 FY76: \$3,000 TOTAL: \$3,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable Unavailable 47-Materials Engr

NAS 2-7251 **University of California - Los Angeles** **1532**
Pioneer FG data analysis
Period *Obligations*
10/13/72-09/30/76 FY76: \$90,000 TOTAL: \$279,670
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coleman, P. J., Jr. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-7785 **University of California - Los Angeles** **1533**
Computer studies
Period *Obligations*
09/13/73-08/20/76 FY76: TOTAL: \$71,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dixon, W. J. ARC/Polentz, P. P. 41-Aero Engr
ARC/Erickson, L. L.

NAS 2-8808 **University of California - Los Angeles** **1534**
Pioneer Venus magnetometer
Period *Obligations*
03/04/75-08/31/78 FY76: \$315,000 TOTAL: \$350,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Russell, C. T. ARC/Hall, C. F. 19-Phys Sci, NEC
Snare, R. C. ARC/Sinnott, D. B.

NAS 2-9128 **University of California - Los Angeles** **1535**
Interdisciplinary scientist, Pioneer/Venus program
Period *Obligations*
02/09/76-10/01/76 FY76: \$1,759 TOTAL: \$1,759
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kaula, W. M. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-9131 **University of California - Los Angeles** **1536**
Interdisciplinary scientist, Pioneer/Venus program
Period *Obligations*
02/09/76-10/01/76 FY76: \$2,883 TOTAL: \$2,883
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schubert, G. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NASA'S UNIVERSITY PROGRAM

CALIFORNIA (Continued)

NAS 4-1995 University of California - Los Angeles 1537
 UCLA computer time
Period *Obligations*
 05/24/73-06/30/74 FY76: TOTAL: \$22,044
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Unavailable DFRG/Carter, A. L. 41-Aero Engr

NAS 5-11674 University of California - Los Angeles 1538
 Magnetometer experiment for the ATS-F
Period *Obligations*
 04/29/69-10/31/76 FY76: \$111,965 TOTAL: \$609,465
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McPherron, R. L. GSFC/Wales, R. O. 32-Geological Sci

NAS 5-20064 University of California - Los Angeles 1539
 Magnetic field investigation for ISEE mother/daughter spacecraft
Period *Obligations*
 06/05/74-10/31/79 FY76: \$229,000 TOTAL: \$538,006
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Russell, C. T. GSFC/Davis, M. A. 13-Physics

NAS 6-2463 University of California - Los Angeles 1540
 GEOS-C research into tectonics of ocean
Period *Obligations*
 04/18/74-04/30/76 FY76: \$23,500 TOTAL: \$96,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kaula, W. M. WFC/Stanley, H. R. 33-Oceanography
 Lingenfelter, R. E. WFC/Rossi, L. C.
 Schubert, G.

NAS 6-2703 University of California - Los Angeles 1541
 Services and materials necessary for the construction of initial synoptic ocean dynamics models for the east coast test area and related activities
Period *Obligations*
 01/15/76-01/14/77 FY76: \$54,484 TOTAL: \$54,484
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mintz, Y. WFC/Stanley, H. R. 33-Oceanography
 Semtner, A. J. WFC/Huang, N.

NAS 8-28310 University of California - Los Angeles 1542
 Metal and halide eutectics, Skylab experiment
Period *Obligations*
 11/02/72-06/30/75 FY76: TOTAL: \$49,967
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Yue, A. S. MSFC/Adams, W. R. 19-Phys Sci, NEC
 MSFC/Aldrich, B. R.

NAS 8-28358 University of California - Los Angeles 1543
 Study of control systems for advanced space vehicles
Period *Obligations*
 02/15/72-01/15/77 FY76: \$22,000 TOTAL: \$93,818
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Likins, P. W. MSFC/Seltzer, S. M. 49-Engr, NEC
 MSFC/Nurre, G. S.

NAS 8-30579 University of California - Los Angeles 1544
 Zero solidification of a sodium chloride-lithium fluoride eutectic mixture
Period *Obligations*
 01/11/74-03/31/76 FY76: TOTAL: \$54,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Yue, A. S. MSFC/Adams, W. R. 19-Phys Sci, NEC
 MSFC/Boese, A.

NAS 8-31710 University of California - Los Angeles 1545
 Space processing applications shuttle payload requirements specification study
Period *Obligations*
 09/26/75-03/26/76 FY76: \$4,992 TOTAL: \$4,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bunshah, R. F. MSFC/Taylor, K. R. 19-Phys Sci, NEC

NCA 2-390402 University of California - Los Angeles 1546
 In situ high-temperature controlled-atmosphere electron microscopy to study nuclei formation
Period *Obligations*
 10/01/73-10/01/75 FY76: TOTAL: \$6,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Douglass, D. L. ARC/Zill, L. P. 12-Chemistry

NCA 2-390405 University of California - Los Angeles 1547
 Automated structural design
Period *Obligations*
 01/01/74-09/01/75 FY76: TOTAL: \$9,627
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schmit, L. A. ARC/Zill, L. P. 41-Aero Engr

NCA 2-390501 University of California - Los Angeles 1548
 Comparison of real-time digital algorithms for the extraction of pitch in speech
Period *Obligations*
 08/15/74-06/30/75 FY76: TOTAL: \$3,366
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Carterette, E. C. ARC/Zill, L. P. 21-Mathematics

NCA 2-390502 University of California - Los Angeles 1549
 Role of prolactin and vasopressin in regulation of water and salt balance
Period *Obligations*
 09/01/74-08/31/75 FY76: TOTAL: \$11,855
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Parlow, A. ARC/Zill, L. P. 53-Other Medical

NCA 2-390503 University of California - Los Angeles 1550
 Development of techniques to separate diezmagnet signals of seismic origin
Period *Obligations*
 09/15/74-09/30/75 FY76: TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Coleman, P. J., Jr. ARC/Zill, L. P. 32-Geological Sci

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NCA 2-390601 University of California - Los Angeles 1551
Concentrations of glycotropin hormones and prolactin

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$13,149 | TOTAL: \$13,149 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Parlow, A. | ARC/Zill, L. P. | 51-Biology |

NCA 2-390602 University of California - Los Angeles 1552
Automated structural design and use of NASA facilities for computer program checkout

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/75-06/30/76 | FY76: \$10,000 | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schmit, L. A. | ARC/Zill, L. P. | 21-Mathematics |
| Miura, H. | | |

NGL 05-007-002 University of California - Los Angeles 1553
Theoretical evaluation of the internal structures and atmospheres of planets and the moon

| Period | Obligations | |
|-------------------|------------------------------|-------------------|
| 01/01/62-12/31/78 | FY76: \$150,748 | TOTAL: \$727,552 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kaula, W. M. | HQ-SM/Stuart-Alexander D. E. | 32-Geological Sci |
| Schubert, G. | HQ-SL/Flinn, E. A. | |

NGL 05-007-003 University of California - Los Angeles 1554
Interdisciplinary space oriented research in physical, biological and engineering sciences

| Period | Obligations | |
|-------------------|---------------------|--------------------|
| 03/01/62-03/31/75 | FY76: \$4,840,654 | TOTAL: \$4,840,654 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Libby, W. F. | HQ-P/Redding, E. R. | 99-Multi-Discip |

NGL 05-007-004 University of California - Los Angeles 1555
Theoretical & experimental investigations of particles & fields in space, including construction of prototype instrumentation

| Period | Obligations | |
|---------------------|-------------------------|--------------------|
| 03/01/62-09/30/78 | FY76: \$150,000 | TOTAL: \$2,330,554 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Coleman, P. J., Jr. | HQ-ST/Cauffman, D. P. | 39-Env Sci, NEC |
| | HQ-ST/Schmerling, E. R. | |

NGL 05-007-005 University of California - Los Angeles 1556
Isotopic chemistry of meteorites, including studies of variation in isotopic abundances among discrete specimens

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 09/20/62-08/31/76 | FY76: \$312,344 | TOTAL: \$312,344 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wetherill, G. W. | HQ-SL/Donn, B. D. | 11-Astronomy |
| | HQ-SM/Bryson, R. P. | |

NGL 05-007-006 University of California - Los Angeles 1557
Studies on the high pressure solid phases of inert gases, particularly as they might relate to planetary interiors

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 09/24/62-09/30/76 | FY76: \$470,622 | TOTAL: \$470,622 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kennedy, G. C. | HQ-SM/Bryson, R. P. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NGL 05-007-190 University of California - Los Angeles 1558
Theoretical space plasma physics

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 06/27/68-09/30/78 | FY76: \$50,000 | TOTAL: \$333,380 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kennel, C. F. | HQ-ST/Taylor, W. W. | 19-Phys Sci, NEC |
| | HQ-ST/Schmerling, E. R. | |

NGL 05-007-330 University of California - Los Angeles 1559
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/18/71-07/31/76 | FY76: \$200,050 | TOTAL: \$200,050 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Warren, N. | JSC/Harris, J. W. | 13-Physics |

NGL 05-007-367 University of California - Los Angeles 1560
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/30/72-01/31/77 | FY76: \$109,500 | TOTAL: \$346,570 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wasson, J. T. | JSC/Harris, J. W. | 12-Chemistry |

NGL 05-007-379 University of California - Los Angeles 1561
Flight dynamics analysis and system identification

| Period | Obligations | |
|---------------------|---------------------|------------------|
| 12/01/72-11/30/77 | FY76: \$124,548 | TOTAL: \$124,548 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Balakrishnan, A. V. | DFRC/Rediess, H. A. | 41-Aero Engr |

NGR 05-007-221 University of California - Los Angeles 1562
Nature and changes of organic matter in deep ocean cores

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 08/08/69-12/31/76 | FY76: \$59,000 | TOTAL: \$394,415 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kaplan, I. R. | HQ-SB/Young, R. S. | 32-Geological Sci |

NGR 05-007-276 University of California - Los Angeles 1563
Data analysis on the OGO-3 and OGO-4 search coil magnetometers

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 04/03/70-10/31/76 | FY76: \$20,000 | TOTAL: \$180,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Holzer, R. E. | HQ-ST/Cauffman, D. P. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGR 05-007-289 University of California - Los Angeles 1564
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 12/29/70-01/31/77 | FY76: \$109,900 | TOTAL: \$423,680 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kaplan, I. R. | JSC/Harris, J. W. | 13-Physics |

NGR 05-007-317 University of California - Los Angeles 1565
Photogeologic interpretation of Mariner Mars 1969 imagery

| Period | Obligations | |
|-------------------|--|-----------------|
| 03/09/71-01/14/77 | FY76: \$14,875 | TOTAL: \$83,971 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schubert, G. | HQ-SL/Dwornik, S. E. 32-Geological Sci | |
| | HQ-SL/Holt, H. E. | |

NGR 05-007-323 University of California - Los Angeles 1566
Research in aeronautics & air transportation

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 03/25/71-10/01/77 | FY76: | TOTAL: \$229,834 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Meecham, W. C. | ARC/Anderson, A. E. | 41-Aero Engr |
| Cole, J. D. | ARC/Levin, A. D. | |

NGR 05-007-328 University of California - Los Angeles 1567
Numerical modeling of the global atmosphere and the world oceans

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 08/15/71-01/31/77 | FY76: \$55,340 | TOTAL: \$350,649 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mintz, Y. | GSFC/Halem, M. | 31-Atmos Sci |
| Arakawa, A. | | |
| Yanai, M. | | |

NGR 05-007-329 University of California - Los Angeles 1568
Elemental variations in genetically related meteorites

| Period | Obligations | |
|-------------------|---------------------------------------|------------------|
| 04/27/71-02/28/79 | FY76: \$116,833 | TOTAL: \$274,850 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wasson, J. T. | HQ-SL/French, B. M. 32-Geological Sci | |
| | HQ-SL/Flinn, E. A. | |

NGR 05-007-337 University of California - Los Angeles 1569
Approximation concepts in structural synthesis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/05/72-01/31/77 | FY76: | TOTAL: \$263,863 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schmit, L. A. | LARC/Stroud, W. J. | 41-Aero Engr |

NGR 05-007-338 University of California - Los Angeles 1570
Biocompatibility and other essential characteristics of several new plastics and new metal alloys for possible use in total joint replacements

| Period | Obligations | |
|-------------------|---------------------------------------|-----------------|
| 12/01/71-07/31/76 | FY76: | TOTAL: \$61,255 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Amstutz, H. C. | LERC/Johnson, R. L. 47-Materials Engr | |

NGR 05-007-351 University of California - Los Angeles 1571
Correlative studies of Apollo 15 and 16 satellite magnetometer data with the Explorer 35 and lunar surface magnetometer data

| Period | Obligations | |
|---------------------|---|------------------|
| 05/25/72-01/31/77 | FY76: \$107,380 | TOTAL: \$423,279 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Coleman, P. J., Jr. | HQ-SL/Williams, R. J. 32-Geological Sci | |
| Russell, C. T. | HQ-SL/Flinn, E. A. | |
| Hubert, S. C. | | |

NGR 05-007-395 University of California - Los Angeles 1572
Computational techniques for unsteady transflow

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 02/07/73-02/28/76 | FY76: | TOTAL: \$35,380 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cole, J. D. | LARC/Bland, S. R. | 41-Aero Engr |
| Krupp, J. A. | LARC/Bennett, R. M. | |

NGR 05-007-407 University of California - Los Angeles 1573
Paleobiologic studies of the antiquity and precambrian evolution of life

| Period | Obligations | |
|-------------------|--------------------------------------|------------------|
| 04/10/73-05/31/77 | FY76: \$33,604 | TOTAL: \$121,054 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schopf, J. W. | HQ-SB/Young, R. S. 32-Geological Sci | |

NGR 05-007-414 University of California - Los Angeles 1574
Aeroelastic stability of helicopter blades in hover and in forward flight using various unsteady aerodynamic theories

| Period | Obligations | |
|-------------------|----------------------------------|-----------------|
| 09/01/73-08/31/76 | FY76: \$38,817 | TOTAL: \$98,808 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Friedmann, P. | LARC/Hammond, C. E. 41-Aero Engr | |
| | LARC/Kvaternik, R. G. | |

NGR 05-007-416 University of California - Los Angeles 1575
Research on interaction of satellite-speed helium atoms with aluminum and quartz surfaces

| Period | Obligations | |
|-------------------|--------------------------------|------------------|
| 10/09/73-05/09/77 | FY76: \$25,000 | TOTAL: \$110,381 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Knuth, E. L. | LARC/Keating, G. M. 13-Physics | |
| Liu, S. M. | LARC/Lee, R. B., III | |

NGR 05-007-418 University of California - Los Angeles 1576
Utricular influences on visual motor control research

| Period | Obligations | |
|-------------------|-------------------------------|-----------------|
| 09/01/73-08/31/76 | FY76: \$19,000 | TOTAL: \$68,713 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Markham, C. H. | ARC/Daunton, N. G. 51-Biology | |
| Estes, M. S. | ARC/Mehler, W. R. | |

NGR 05-007-489 University of California - Los Angeles 1577
Investigation of shell stars and eclipsing binaries

| Period | Obligations | |
|-------------------|------------------------------------|-----------------|
| 05/01/74-04/30/75 | FY76: | TOTAL: \$13,400 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Plavec, M. | GSFC/Kupperian, J. E. 11-Astronomy | |

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NSG 1270 **University of California - Los Angeles** **1578**
Space borne and ground based polarimeter to monitor atmospheric aerosols

| Period | Obligations |
|-------------------|---------------------------------------|
| 01/01/76 12/31/76 | FY76: \$30,267 TOTAL: \$30,267 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kuriyan, J. G. | LARC/McCormick, M. P. 31-Atmos Sci |

NSG 7002 **University of California - Los Angeles** **1585**
Anelastic models of fault zone tectonics and their measurement by space techniques

| Period | Obligations |
|-------------------|---------------------------------------|
| 11/01/73-12/31/76 | FY76: \$6,000 TOTAL: \$122,110 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kaula, W. M. | HQ-ES/Murphy, J. P. 32-Geological Sci |
| Schubert, G. | GSFC/Smith, D. E. |

NSG 2094 **University of California - Los Angeles** **1579**
General circulation of the Venus atmosphere

| Period | Obligations |
|-------------------|---------------------------------------|
| 07/01/75-08/31/76 | FY76: \$28,385 TOTAL: \$28,385 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Schubert, G. | ARC/Pollack, J. 31-Atmos Sci |
| | ARC/Reynolds, R. T. |

NSG 7052 **University of California - Los Angeles** **1586**
Shock processes in terrestrial analogs of porous lunar & meteoritic materials

| Period | Obligations |
|-------------------|---|
| 04/01/74-01/31/78 | FY76: \$52,500 TOTAL: \$102,500 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kieffer, S. W. | HQ-SL/Williams, R. J. 32-Geological Sci |
| | HQ-SL/Flinn, E. A. |

NSG 2115 **University of California - Los Angeles** **1580**
In situ small cluster mobility studies

| Period | Obligations |
|-------------------|---------------------------------------|
| 12/15/75-12/14/76 | FY76: \$22,764 TOTAL: \$22,764 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Douglass, D. L. | ARC/Poppa, H. R. 13-Physics |
| Heineniann, K. | |

NSG 7113 **University of California - Los Angeles** **1587**
Dynamical studies of solar system origin and evolution

| Period | Obligations |
|-------------------|--|
| 01/01/75-01/31/76 | FY76: TOTAL: \$9,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kaula, W. M. | HQ-SL/Dwornik, S. E. 11-Astronomy |
| | HQ-SL/Holt, H. E. |

NSG 3082 **University of California - Los Angeles** **1581**
Investigation of aeroelastic effects in wind turbines

| Period | Obligations |
|-------------------|---------------------------------------|
| 09/01/75-08/31/77 | FY76: \$68,273 TOTAL: \$68,273 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Friedman, P. P. | LERC/Savino, J. M. 46-Mech Engr |
| | LERC/Thomas, R. L. |

NSG 7158 **University of California - Los Angeles** **1588**
Three dimensional study of solar oscillation

| Period | Obligations |
|-------------------|---------------------------------------|
| 07/01/75-10/01/76 | FY76: \$20,000 TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Ulrich, R. K. | HQ-ST/Timothy, A. F. 13-Physics |

NSG 4001 **University of California - Los Angeles** **1582**
Short-time climatology related to air turbulence

| Period | Obligations |
|-------------------|---------------------------------------|
| 03/01/74-06/30/77 | FY76: \$35,388 TOTAL: \$79,632 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Wurtele, M. G. | DFRC/Ehernberger, L. J. 31-Atmos Sci |

NSG 7164 **University of California - Los Angeles** **1589**
Dynamical studies of the Venus atmosphere

| Period | Obligations |
|-------------------|--|
| 09/01/75-08/31/76 | FY76: \$21,813 TOTAL: \$21,813 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Schubert, G. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. |

NSG 5056 **University of California - Los Angeles** **1583**
Investigation of the far UV spectra of the pole on be stars Cen and Cyg

| Period | Obligations |
|-------------------|---|
| 02/01/75-09/30/76 | FY76: TOTAL: \$8,623 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Peters, C. J. | GSFC/Kupperian, J. E. 11-Astronomy |

NSG 7180 **University of California - Los Angeles** **1590**
Investigation of the subsonic magnetosheath plasma and magnetic field data from Explorer

| Period | Obligations |
|-------------------|--|
| 10/01/75-09/30/76 | FY76: \$19,989 TOTAL: \$19,989 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Siscoe, G. L. | HQ-ST/Cauffman, D. P. 39-Env Sci, NEC |

NSG 5070 **University of California - Los Angeles** **1584**
Depletions and physical conditions within diffuse interstellar clouds

| Period | Obligations |
|-------------------|---|
| 10/01/75-09/30/77 | FY76: TOTAL: \$2,500 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Jura, M. A. | GSFC/Kupperian, J. E. 11-Astronomy |

NSG 7239 **University of California - Los Angeles** **1591**
Possible correlations between the interplanetary magnetic field and zodiacal light polarization vectors

| Period | Obligations |
|-------------------|--|
| 06/01/76-09/30/77 | FY76: \$15,135 TOTAL: \$15,135 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Aller, L. H. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Donn, B. D. |

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

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NGL 05-008-005 University of California - Riverside 1592
Atomic scattering theory
Period *Obligations*
11/29/66-02/28/79 FY76: \$10,000 TOTAL: \$130,953
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Poe, R. T. GSFC/Temkin, A. 13-Physics

NAS 5-22556 University of California - San Diego 1599
Mission definition study of an astronomical satellite survey in the infrared
Period *Obligations*
06/15/75-09/19/76 FY76: \$14,585 TOTAL: \$14,585
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Soifer, B. T. GSFC/Hymowitz, E. W. 11-Astronomy

NGR 05-008-022 University of California - Riverside 1593
Measurement of neutrons from sun
Period *Obligations*
05/16/69-08/14/76 FY76: \$42,000 TOTAL: \$312,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
White, R. S. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

NAS 5-23481 University of California - San Diego 1600
A spacecraft charging study
Period *Obligations*
05/03/76-05/02/77 FY76: \$99,596 TOTAL: \$99,596
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIlwain, C. E. GSFC/Bartlett, R. O. 11-Astronomy

NAS 2-6552 University of California - San Diego 1594
Data analysis of Jovian trapped radiation by Pioneer F/G
Period *Obligations*
01/25/72-06/30/76 FY76: \$176,480 TOTAL: \$658,551
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fillius, R. W. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 6-2506 University of California - San Diego 1601
GEOS-C research
Period *Obligations*
12/17/74-06/17/77 FY76: \$20,000 TOTAL: \$53,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hendershott, M. WFC/Stanley, H. R. 11-Astronomy
Munk, W.
Zetler, B.

NAS 5-11080 University of California - San Diego 1595
Cosmic X-ray experiment OSO-H
Period *Obligations*
09/13/67-10/31/75 FY76: TOTAL: \$2,103,131
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baity, W. A. GSFC/Berko, F. W. 19-Phys Sci, NEC
Ulmer, A.

NAS 8-27974 University of California - San Diego 1602
Design & development of AGR-4 meV range gamma ray telescope experiment under the HEAO program
Period *Obligations*
06/22/72-04/15/78 FY76: \$1,105,000 TOTAL: \$5,853,019
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. MSFC/Jordan, W. E. 11-Astronomy
MSFC/Jones, J. B.

NAS 5-11081 University of California - San Diego 1596
Soft & hard solar X-ray experiment for OSO
Period *Obligations*
09/13/67-06/30/75 FY76: TOTAL: \$2,161,543
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. GSFC/Donley, J. L. 31-Atmos Sci

NAS 8-28015 University of California - San Diego 1603
Solar flare infrared observations
Period *Obligations*
10/26/71-09/01/74 FY76: TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hudson, H. S. MSFC/Fountain, W. F. 11-Astronomy
MSFC/Wdowiak, T. J.

NAS 5-21055 University of California - San Diego 1597
Programmable auroral particles experiment to be flown on the ATS-F
Period *Obligations*
06/27/69-04/30/76 FY76: \$100,656 TOTAL: \$1,313,656
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIlwain, C. E. GSFC/Wales, R. O. 13-Physics

NAS 8-31145 University of California - San Diego 1604
Joint analysis of satellite data study
Period *Obligations*
12/17/74-10/16/76 FY76: \$17,706 TOTAL: \$31,557
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McIlwain, C. E. MSFC/Chappell, C. R. 13-Physics
MSFC/Fields, S. A.

NAS 5-22375 University of California - San Diego 1598
Hard X-ray imaging system study
Period *Obligations*
05/13/75-09/30/76 FY76: \$84,126 TOTAL: \$111,014
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peterson, L. E. GSFC/White, A. F., Jr. 11-Astronomy

NAS 8-31839 University of California - San Diego 1605
Definition study of electromagnetic force current generator
Period *Obligations*
02/05/76-08/05/76 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Banks, P. M. MSFC/Roberts, W. T. 13-Physics
Williamson, P. R. MSFC/Chappell, C. R.

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGL 05-005-003 University of California - San Diego 1606
Laboratory and balloon experiments in X-ray and gamma ray astronomy

| Period | Obligations |
|-------------------|------------------------------------|
| 09/15/62-11/30/76 | FY76: \$225,000 TOTAL: \$1,940,752 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Peterson, L. E. | HQ-SA/Opp, A. G. 13-Physics |
| Pelling, R. M. | |

NGL 05-005-004 University of California - San Diego 1607
Theoretical studies in astrophysics

| Period | Obligations |
|-------------------|----------------------------------|
| 02/04/63-03/31/79 | FY76: \$56,000 TOTAL: \$719,633 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Gould, R. J. | HQ-SA/Roman, N. G. 11-Astronomy |
| Burbidge, G. R. | HQ-SA/Rosendhal, J. D. |

NGL 05-005-007 University of California - San Diego 1608
Study of geomagnetically trapped particles by Explorer & Injun satellite data, refining particle detectors, detector systems & telemetered-data processing equipment

| Period | Obligations |
|-------------------|------------------------------------|
| 02/20/64-09/30/78 | FY76: \$223,000 TOTAL: \$1,920,894 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| McIlwain, C. E. | HQ-ST/Cauffman, D. P. 13-Physics |
| | HQ-ST/Schmerling, E. R. |

NGL 05-009-002 University of California - San Diego 1609
Studies of the composition and structure of meteorites

| Period | Obligations |
|-------------------|---|
| 10/02/63-02/28/79 | FY76: \$76,130 TOTAL: \$600,154 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Arrhenius, G. | HQ-SL/Williams, R. J. 32-Geological Sci |
| | HQ-SL/Flinn, E. A. |

NGL 05-009-004 University of California - San Diego 1610
Research on interaction of meteorites & cosmic rays; consideration of origin & history of meteorites

| Period | Obligations |
|-------------------|---------------------------------------|
| 12/19/62-03/14/79 | FY76: \$57,033 TOTAL: \$941,247 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Arnold, J. R. | HQ-SL/French, B. F. 32-Geological Sci |
| | HQ-SL/Flinn, E. A. |

NGL 05-009-005 University of California - San Diego 1611
Research on general geochemical problems, including meteorite materials, rare gas content of meteorites & separation in gas phase at time of formation of solar system

| Period | Obligations |
|-------------------|--------------------------------------|
| 10/31/62-02/28/79 | FY76: \$27,000 TOTAL: \$492,707 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Suess, H. E. | HQ-SL/French, B. M. 19-Phys Sci, NEC |
| Herndon, J. M. | HQ-SL/Flinn, E. A. |

NGL 05-009-109 University of California - San Diego 1612
In-flight evaluation of weightlessness and gravity on cardiopulmonary function of man

| Period | Obligations |
|-------------------|-------------------------------------|
| 02/17/69-10/31/78 | FY76: \$75,000 TOTAL: \$727,351 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| West, J. B. | ARC/Billingham, J. 53-Other Medical |
| | ARC/Johnson, R. D. |

NGL 05-009-148 University of California - San Diego 1613
Lunar sample analysis

| Period | Obligations |
|-------------------|----------------------------------|
| 02/11/71-01/31/79 | FY76: \$94,000 TOTAL: \$674,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Arnold, J. R. | JSC/Harris, J. W. 12-Chemistry |

NGL 05-009-150 University of California - San Diego 1614
Lunar sample analysis

| Period | Obligations |
|-------------------|----------------------------------|
| 02/01/71-01/31/78 | FY76: \$208,700 TOTAL: \$930,092 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Marti, K. | JSC/Harris, J. W. 12-Chemistry |

NGL 05-009-230 University of California - San Diego 1615
Infrared astronomy research

| Period | Obligations |
|-------------------|----------------------------------|
| 03/08/73-12/01/76 | FY76: TOTAL: \$109,341 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Soifer, B. T. | ARC/Cameron, R. M. 11-Astronomy |
| Stein, W. A. | ARC/Gillespie, Jr., C. M. |

NGR 05-005-005 University of California - San Diego 1616
Study of lunar gamma ray emission

| Period | Obligations |
|-------------------|---|
| 09/10/63-01/31/77 | FY76: \$81,365 TOTAL: \$606,843 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Arnold, J. R. | HQ-SL/Williams, R. J. 32-Geological Sci |
| Peterson, L. E. | HQ-SL/Flinn, E. A. |

NGR 05-005-055 University of California - San Diego 1617
Infrared astronomic observation from high altitude airplane/telescope program

| Period | Obligations |
|-------------------|----------------------------------|
| 06/05/73-08/30/76 | FY76: \$65,000 TOTAL: \$136,217 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Stein, W. A. | ARC/Cameron, R. M. 11-Astronomy |
| Gillett, F. C. | ARC/Gillespie, C. M., Jr. |

NGR 05-009-075 University of California - San Diego 1618
Velocity distributions and electron moment equations

| Period | Obligations |
|-------------------|----------------------------------|
| 09/13/67-02/28/77 | FY76: \$70,000 TOTAL: \$432,784 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Banks, P. M. | HQ-ST/Taylor, W. W. 13-Physics |

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NGR 05-009-076 University of California - San Diego 1619
Theory of wave propagation and wave-particle interaction in the earth's magnetosphere

| Period | Obligations |
|-------------------|----------------------------------|
| 10/19/67-09/30/76 | FY76: \$35,000 TOTAL: \$358,656 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Fejer, J. A. | HQ-ST/Cauffman, D. P. 13-Physics |
| | HQ-ST/Schmerling, E. R. |

NGR 05-009-081 University of California - San Diego 1620
Theoretical studies of fields, particles and plasmas in space

| Period | Obligations |
|-------------------|------------------------------------|
| 02/08/68-09/30/75 | FY76: TOTAL: \$422,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Axford, W. I. | HQ-ST/Schmerling, E. R. 13-Physics |

NGR 05-009-083 University of California - San Diego 1621
Electrophysiological studies of the nervous system

| Period | Obligations |
|-------------------|-----------------------------------|
| 01/01/68-09/01/78 | FY76: TOTAL: \$113,059 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Galambos, R. | ARC/Winter, D. L. 61-Biol Aspects |

NGR 05-009-110 University of California - San Diego 1622
The structure and evolution of the asteroid belt

| Period | Obligations |
|-------------------|-----------------------------------|
| 01/23/70-08/31/76 | FY76: \$45,000 TOTAL: \$383,690 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Alfven, H. | HQ-SL/Fellows, R. F. 11-Astronomy |
| | HQ-SL/Donn, B. D. |

NGR 05-009-178 University of California - San Diego 1623
Measurement of fluctuations in turbulent boundary layers with heterogeneous composition

| Period | Obligations |
|-------------------|----------------------------------|
| 02/16/72-09/01/76 | FY76: TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Libby, P. A. | LARC/Gessow, A. 41-Aero Engr |
| | LARC/Bertram, M. H. |

NGR 05-009-188 University of California - San Diego 1624
Construction of a 200 channel photometer for use in low light level astronomy

| Period | Obligations |
|-------------------|--------------------------------------|
| 05/17/72-06/30/76 | FY76: \$150,000 TOTAL: \$550,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| McIlwain, C. E. | HQ-SA/Aucremanne, M. J. 11-Astronomy |
| Beaver, E. A. | GSFC/Sobieski, S. |
| Harms, H.A. | |

NGR 05-009-198 University of California - San Diego 1625
Mechanisms of alertness in man

| Period | Obligations |
|-------------------|-------------------------------------|
| 05/24/72-05/31/77 | FY76: TOTAL: \$183,479 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Galambos, R. | ARC/Anliker, J. E. 59-Life Sci, NEC |
| | ARC/Nagel, D. C. |

NGR 05-009-213 University of California - San Diego 1626
Hydrostatic pressure and macro-molecular synthesis in marine bacteria

| Period | Obligations |
|-------------------|----------------------------------|
| 04/12/73-05/31/77 | FY76: \$40,000 TOTAL: \$129,954 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Yayanos, A. A. | HQ-SB/Young, R. S. 51-Biology |

NGR 05-009-218 University of California - San Diego 1627
An automatic analyzer for amino acids purines and pyrimidines to examine lunar and Martian soil samples

| Period | Obligations |
|-------------------|----------------------------------|
| 09/12/72-08/15/76 | FY76: \$41,132 TOTAL: \$163,364 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Miller, S. L. | HQ-SB/Young, R. S. 12-Chemistry |

NGR 05-009-226 University of California - San Diego 1628
Absolute GF-value and hydrogen atom collision

| Period | Obligations |
|-------------------|-----------------------------------|
| 04/12/73-08/31/75 | FY76: TOTAL: \$47,117 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Penner, S. S. | HQ-ST/Timothy, A. F. 11-Astronomy |

NGR 05-009-239 University of California - San Diego 1629
Low resolution spectrograph for the large space telescope

| Period | Obligations |
|-------------------|----------------------------------|
| 10/01/73-06/30/77 | FY76: \$3,959 TOTAL: \$22,464 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Beaver, E. A. | GSFC/Sobieski, S. 11-Astronomy |
| McIlwain, C. E. | GSFC/Meese, K. J. |
| Burbidge, E. M. | |

NGR 05-009-246 University of California - San Diego 1630
Geophysical perturbations on satellite geodesy

| Period | Obligations |
|-------------------|------------------------------------|
| 11/01/73-10/31/76 | FY76: \$186,955 TOTAL: \$334,955 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Berger, J. | GSFC/Carpenter, L. 39-Env Sci, NEC |
| Brune, J. N. | |

NGR 05-009-257 University of California - San Diego 1631
Single scan television radiography

| Period | Obligations |
|-------------------|----------------------------------|
| 11/01/73-10/31/76 | FY76: \$50,000 TOTAL: \$128,979 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Baily, N. A. | ARC/Sandler, H. 52-Clinical Med |

NGR 05-009-260 University of California - San Diego 1632
Rapid quality control of photographs

| Period | Obligations |
|-------------------|----------------------------------|
| 03/18/74-07/31/76 | FY76: TOTAL: \$17,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Lee, S. H. | GSFC/Shulman, A. R. 13-Physics |
| | GSFC/Webb, W. C. |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NGR 05-009-264 **University of California - San Diego** **1633**
Optical parallel processing

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 03/15/74-07/31/77 | FY76: \$30,000 | TOTAL: \$92,100 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lee, S. H. | GSFC/Schaefer, D. H. | 49-Engr, NEC |

NSG 3034 **University of California - San Diego** **1634**
Preparation and identification of hydrides of intermetallic compounds

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 08/01/74-07/31/77 | FY76: | TOTAL: \$64,331 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oesterreicher, H. | LERC/Woolam, J. A. | 47-Materials Engr |

NSG 3047 **University of California - San Diego** **1635**
Investigation of droplet burning at zero g

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/75-05/31/77 | FY76: \$25,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Williams, F. A. | LERC/Cochran, T. H. | 43-Chem Engr |

NSG 3055 **University of California - San Diego** **1636**
Chemical vapor deposition of high Tc superconductors

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/01/75-02/28/77 | FY76: \$45,000 | TOTAL: \$105,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Webb, G. W. | LERC/Woolam, J. A. | 19-Phys Sci, NEC |
| Engelhardt, J. J. | | |

NSG 3103 **University of California - San Diego** **1637**
Superconductivity in ternary molybdenum sulfides

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/01/76-04/01/77 | FY76: \$40,000 | TOTAL: \$40,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Luo, H. L. | LERC/Woolam, J. A. | 13-Physics |

NSG 5089 **University of California - San Diego** **1638**
Present day plate motions

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 01/01/76-12/31/76 | FY76: \$27,000 | TOTAL: \$27,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Jordan, T. H. | GSFC/Mead, G. D. | 32-Geological Sci |
| | GSFC/Coates, R. J. | |

NSG 7001 **University of California - San Diego** **1639**
Investigation of auroral phenomena

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 11/01/73-10/31/74 | FY76: | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Doupnik, J. R. | HQ-ST/Schmerling, E. R. | 31-Atmos Sci |

NSG 7027 **University of California - San Diego** **1640**
Orbital geochemical data analysis and synthesis

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 03/01/74-01/31/77 | FY76: \$76,931 | TOTAL: \$221,026 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Arnold, J. R. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| Peterson, L. E. | HQ-SL/Flinn, E. A. | |

NSG 7100 **University of California - San Diego** **1641**
Infrared continuum observations of solar atmospheric structure

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 11/14/74-06/30/76 | FY76: | TOTAL: \$35,001 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hudson, H. S. | HQ-ST/Timothy, A. F. | 13-Physics |

NSG 7102 **University of California - San Diego** **1642**
Research on processes controlling the formation and evolution of the small bodies in the solar system

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 09/01/74-08/31/76 | FY76: \$50,000 | TOTAL: \$100,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Alfven, H. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

NSG 7121 **University of California - San Diego** **1643**
Carbonaceous chondrites early irradiation and 244/pu fission records

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 02/27/75-01/31/77 | FY76: \$32,099 | TOTAL: \$49,241 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| MacDougall, J. D. | HQ-SL/French, B. M. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7161 **University of California - San Diego** **1644**
Analysis and interpretation of solar X-ray data from OSO-7

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 07/01/75-06/30/76 | FY76: \$47,000 | TOTAL: \$47,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Peterson, L. E. | HQ-ST/Timothy, A. F. | 13-Physics |

W-14108 **University of California - San Diego** **1645**
Preparation of a book from research received under grant No NSG-7102

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 02/06/76-08/31/76 | FY76: \$5,000 | TOTAL: \$5,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Alfven, H. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |

NCA 2-665301 **University of California - San Francisco** **1646**
Comparative anatomical survey of the habenular nuclear complex in mammals

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 01/01/73-09/30/75 | FY76: | TOTAL: \$6,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Degroot, J. | ARC/Zill, L. P. | 51-Biology |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NCA 2-665401 University of California - San Francisco 1647
Glucocorticoid feedback sites in dog brains
Period *Obligations*
12/01/73-04/30/75 **FY76:** **TOTAL: \$2,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dallman, M. F. ARC/Zill, L. P. 51-Biology

NCA 2-665402 University of California - San Francisco 1648
Ecological factor involved in maintenance of skin flora
Period *Obligations*
06/01/74-06/01/75 **FY76:** **TOTAL: \$3,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aly, R. ARC/Zill, L. P. 51-Biology

NCA 2-665502 University of California - San Francisco 1649
Regulation of adrenal growth and function
Period *Obligations*
05/01/75-04/30/76 **FY76:** **TOTAL: \$14,340**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dallman, M. F. ARC/Zill, L. P. 51-Biology

NCA 2-665601 University of California - San Francisco 1650
Ecological factor involved in maintenance of skin flora
Period *Obligations*
08/15/75-08/14/76 **FY76: \$3,000** **TOTAL: \$3,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aly, R. ARC/Zill, L. P. 51-Biology

NCA 2-665602 University of California - San Francisco 1651
Circadian changes in adrenal sensitivity
Period *Obligations*
05/01/76-04/30/78 **FY76: \$15,000** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dallman, M. F. ARC/Danellis, J. V. 51-Biology

NGL 05-025-014 University of California - San Francisco 1652
Structure and function of the purple membrane of halobacterium halobium
Period *Obligations*
05/17/72-04/30/76 **FY76:** **TOTAL: \$187,903**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stoeckenius, W. ARC/Zill, L. P. 59-Life Sci, NEC
HQ-SL/Young, R. S.

NSG 7151 University of California - San Francisco 1653
Light energy conversion in halobacterium
Period *Obligations*
07/01/75-09/30/77 **FY76: \$50,000** **TOTAL: \$50,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stoeckenius, W. HQ-SB/Young, R. S. 51-Biology
Bogomolni, R. A.
Zier, L. O.

NAS 9-14816 University of California - Santa Barbara 1654
Shuttle earth resources and oceanographic imaging radar (application and research roles)
Period *Obligations*
10/13/75-09/01/76 **FY76: \$30,485** **TOTAL: \$30,485**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simonett, D. S. JSC/Nitschke, H. A. 33-Oceanography

NCA 2-680601 University of California - Santa Barbara 1655
Studies on ionic concentrations and tissue metabolism
Period *Obligations*
01/01/76-12/31/76 **FY76: \$3,000** **TOTAL: \$3,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rochelle, R. H. ARC/Zill, L. P. 51-Biology

NGR 05-010-035 University of California - Santa Barbara 1656
Pre-paleozoic biotas and environments
Period *Obligations*
08/01/68-07/31/75 **FY76:** **TOTAL: \$245,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cloud, P. E. HQ-SB/Young, R. S. 32-Geological Sci

NGR 05-010-062 University of California - Santa Barbara 1657
Planetary geophysics
Period *Obligations*
03/01/73-06/30/76 **FY76: \$18,626** **TOTAL: \$63,424**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peale, S. J. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NGR 05-010-081 University of California - Santa Barbara 1658
Lunar sample analysis
Period *Obligations*
02/01/73-01/31/77 **FY76: \$61,300** **TOTAL: \$229,917**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tilton, G. R. JSC/Harris, J. W. 32-Geological Sci

NSG 5106 University of California - Santa Barbara 1659
Research of ocean color in the Santa Barbara channel
Period *Obligations*
03/01/76-11/30/76 **FY76: \$8,369** **TOTAL: \$8,369**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Estes, J. E. GSFC/Hovis, W. A. 33-Oceanography

NSG 7122 University of California - Santa Barbara 1660
Remanent magnetization of tektites
Period *Obligations*
10/01/74-01/31/76 **FY76:** **TOTAL: \$46,439**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fuller, M. D. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Roberson, F. I.

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NSG 9020 **University of California - Santa Barbara** **1661**
Remanent magnetization of lunar samples

| Period | Obligations |
|-------------------|---|
| 10/31/74-01/31/79 | FY76: \$159,700 TOTAL: \$269,237 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Fuller, M. D. | JSC/Harris, J. W. 19-Phys Sci, NEC |

NCA 2-670501 **University of San Francisco** **1668**
Influence of various diets on some biological parameters in animals

| Period | Obligations |
|-------------------|---------------------------------------|
| 08/01/74-07/31/75 | FY76: TOTAL: \$9,912 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Furst, A. | ARC/Zill, L. P. * 51-Biology |

NGR 05-061-015 **University of California - Santa Cruz** **1662**
Infrared instrumentation

| Period | Obligations |
|-------------------|---------------------------------------|
| 07/06/72-01/31/77 | FY76: \$37,929 TOTAL: \$116,270 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Rank, D. M. | HQ-SA/Bogges, N. W. 11-Astronomy |
| Osterbrock, D. E. | HQ-SA/Roman, N. G. |

NCA 2-670503 **University of San Francisco** **1669**
Respiratory analysis

| Period | Obligations |
|-------------------|---------------------------------------|
| 09/01/74-11/30/75 | FY76: TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Furst, A. | ARC/Zill, L. P. 52-Clinical Med |

NSG 9034 **University of California - Santa Cruz** **1663**
Petrologic and stratigraphic studies of lunar drill core and drive tubes

| Period | Obligations |
|-------------------|--|
| 09/01/75-08/31/76 | FY76: \$63,096 TOTAL: \$63,096 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Papike, J. J. | JSC/Harris, J. W. 39-Env Sci, NEC |

NCA 2-670504 **University of San Francisco** **1670**
Toxic risk assessment of manganese combustion products

| Period | Obligations |
|--------------------|---------------------------------------|
| 04/01/75-09/30/75 | FY76: TOTAL: \$8,733 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Furst, A. | ARC/Zill, L. P. 53-Other Medical |
| Harding-Barlow, I. | |

NAS 2-7059 **University of San Francisco** **1664**
Apollo radiation dosimetry

| Period | Obligations |
|-------------------|---------------------------------------|
| 06/14/72-06/30/77 | FY76: \$65,487 TOTAL: \$224,418 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Benton, E. V. | ARC/Taketa, S. T. 13-Physics |
| | ARC/Tremor, J. W. |

NSG 2039 **University of San Francisco** **1671**
Research on reactive toxicity of pyrolysis effluents

| Period | Obligations |
|-------------------|--|
| 08/01/74-04/30/77 | FY76: \$104,517 TOTAL: \$163,395 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Hilado, C. J. | ARC/Kourtides, D. A. 12-Chemistry |
| Furst, A. | ARC/Parker, J. A. |

NAS 8-26758 **University of San Francisco** **1665**
Study for heavy particle, passive, personnel dosimetry using etched particles

| Period | Obligations |
|-------------------|---------------------------------------|
| 01/21/71-06/30/77 | FY76: TOTAL: \$88,504 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Benton, E. V. | MSFC/Parnell, T. A. 13-Physics |
| | MSFC/Eby, P. B. |

NSG 2063 **University of San Francisco** **1672**
Effects of heavy particle radiation of the mammalian brain and related tissues

| Period | Obligations |
|-------------------|---------------------------------------|
| 01/01/75-10/01/76 | FY76: \$120,700 TOTAL: \$169,186 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Benton, E. V. | ARC/Miquel, J. 51-Biology |

NAS 9-12466 **University of San Francisco** **1666**
Dosimetry materials

| Period | Obligations |
|-------------------|---------------------------------------|
| 02/02/72-12/31/76 | FY76: TOTAL: \$190,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Benton, E. V. | JSC/Bailey, J. V. 51-Biology |

NSG 2164 **University of San Francisco** **1673**
Advanced thermal protection system

| Period | Obligations |
|-------------------|--|
| 06/14/76-06/13/77 | FY76: \$17,325 TOTAL: \$17,325 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Hilado, C. J. | ARC/Riccitiello, S. R. 13-Physics |

NAS 9-14396 **University of San Francisco** **1667**
ASTP experiment AR002

| Period | Obligations |
|-------------------|---------------------------------------|
| 10/16/74-10/16/76 | FY76: TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Benton, E. V. | JSC/Taylor, G. R. 51-Biology |

NAS 8-27799 **University of Santa Clara** **1674**
Study of algebraic methods for analysis and design of attitude control systems

| Period | Obligations |
|-------------------|---------------------------------------|
| 06/30/71-05/31/75 | FY76: TOTAL: \$77,029 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Siljak, D. D. | MSFC/Seltzer, S. M. 49-Engr, NEC |
| | MSFC/Nurre, G. S. |

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-685402 **University of Santa Clara** **1675**
Joint use of specialized resources (law)
Period *Obligations*
07/15/73-12/31/76 FY76: \$39,227 TOTAL: \$39,227
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alexander, G. ARC/Zill, L. P. 79-Soc Sci, NEC

NCA 2-685408 **University of Santa Clara** **1676**
Thermal history of the moon and the terrestrial planets
Period *Obligations*
09/01/74-08/31/75 FY76: TOTAL: \$6,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barker, W. A. ARC/Zill, L. P. 32-Geological Sci
Fricker, P. E.

NCA 2-685409 **University of Santa Clara** **1677**
New formulation of tensor analysis and its application to numerical solution of fluid mechanics
Period *Obligations*
07/01/74-06/30/75 FY76: TOTAL: \$14,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Markle, G. E. ARC/Zill, L. P. 41-Aero Engr

NCA 2-685501 **University of Santa Clara** **1678**
Research in biomedical instrumentation
Period *Obligations*
07/01/74-06/30/75 FY76: TOTAL: \$14,944
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pefley, R. K. ARC/Zill, L. P. 59-Life Sci, NEC

NCA 2-685502 **University of Santa Clara** **1679**
Investigation of the cosmo chemistry of inorganic acids
Period *Obligations*
08/01/74-07/31/75 FY76: TOTAL: \$11,440
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sweeney, M. A. ARC/Zill, L. P. 12-Chemistry

NCA 2-685505 **University of Santa Clara** **1680**
Nox suppression possibilities for gas turbine using methanol as a fuel
Period *Obligations*
08/15/74-06/30/76 FY76: TOTAL: \$14,898
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pefley, R. K. ARC/Zill, L. P. 41-Aero Engr

NCA 2-685507 **University of Santa Clara** **1681**
A two dimensional model of the upper ionosphere of Venus
Period *Obligations*
06/01/75-06/15/76 FY76: TOTAL: \$14,248
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCormick, P. T. ARC/Zill, L. P. 31-Atmos Sci

NCA 2-685508 **University of Santa Clara** **1682**
Study of selected NASA-AMES procurement systems
Period *Obligations*
03/04/75-09/30/75 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bruno, A. V. ARC/Zill, L. P. 75-Political Sci

NCA 2-685509 **University of Santa Clara** **1683**
Physiology of extremely halophilic bacteria
Period *Obligations*
06/01/75-05/31/76 FY76: \$1,250 TOTAL: \$9,170
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tomlinson, G. A. ARC/Zill, L. P. 51-Biology

NCA 2-685510 **University of Santa Clara** **1684**
Legal implications of extraterrestrial civilizations
Period *Obligations*
05/01/75-05/01/76 FY76: \$12,783 TOTAL: \$18,783
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alexander, G. J. ARC/Zill, L. P. 75-Political Sci

NCA 2-685601 **University of Santa Clara** **1685**
Subsonic flow visualization using the helium bubble technique
Period *Obligations*
07/01/75-07/01/76 FY76: \$9,727 TOTAL: \$9,727
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Raggett, J. ARC/Zill, L. P. 41-Aero Engr

NCA 2-685603 **University of Santa Clara** **1686**
Fate of organic compounds in primitive environment
Period *Obligations*
08/01/75-09/15/76 FY76: \$12,390 TOTAL: \$12,390
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sweeney, M. A. ARC/Zill, L. P. 51-Biology

NCA 2-685605 **University of Santa Clara** **1687**
Biothermofluid mechanics
Period *Obligations*
07/01/75-06/30/76 FY76: \$14,950 TOTAL: \$14,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pefley, R. K. ARC/Zill, L. P. 59-Life Sci, NEC

NCA 2-685606 **University of Santa Clara** **1688**
Thermal history of the moon and terrestrial planets
Period *Obligations*
09/01/75-08/31/76 FY76: \$7,000 TOTAL: \$7,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barker, W. A. ARC/Zill, L. P. 32-Geological Sci
Fricker, P. E.

NCA 2-685610 **University of Santa Clara** **1689**
Two-dimensional model of the upper ionosphere of Venus
Period *Obligations*
06/16/76-06/15/77 FY76: \$11,716 TOTAL: \$11,716
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCormick, P. T. ARC/Zill, L. P. 11-Astronomy

**NASA'S UNIVERSITY PROGRAM
CALIFORNIA (Continued)**

NCA 2-685614 **University of Santa Clara** **1690**
Terminal oxidation in extreme halophilic bacteria
Period *Obligations*
06/01/76-05/31/77 FY76: \$12,090 TOTAL: \$12,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tomlinson, G. A. ARC/Hochstein, L. I. 31-Atmos Sci

NSG 2036 **University of Santa Clara** **1697**
Management systems research study
Period *Obligations*
07/15/74-11/30/76 FY76: \$40,000 TOTAL: \$126,152
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bruno, A. V. ARC/Walsh, L. J. 99-Multi-Discip

NCA 2-685701 **University of Santa Clara** **1691**
Thermal history of the moon and terrestrial Casius
Period *Obligations*
09/01/76-08/31/77 FY76: \$7,056 TOTAL: \$7,056
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barker, W. A. ARC/Reynolds, R. T. 32-Geological Sci

NSG 2075 **University of Santa Clara** **1698**
Properties of moon and its environment from lunar magnetometer measurements
Period *Obligations*
09/01/75-09/01/76 FY76: \$5,448 TOTAL: \$44,125
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parkin, C. W. ARC/Dyal, P. 13-Physics

NGR 05-017-010 **University of Santa Clara** **1692**
Extension of Mitrovics method for the analysis and design of dynamic systems
Period *Obligations*
11/01/75-10/31/76 FY76: \$24,990 TOTAL: \$234,846
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Siljak, D. D. ARC/Doolin, B. F. 49-Engr, NEC
ARC/Meyer, G.

NSG 2086 **University of Santa Clara** **1699**
Comparison of finite element & finite difference methods for fluid flow problems
Period *Obligations*
07/23/75-07/31/76 FY76: \$27,000 TOTAL: \$27,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vinokur, M. ARC/Lomax, H. 13-Physics

NGR 05-017-027 **University of Santa Clara** **1693**
Planetary geology-stellar evolution
Period *Obligations*
03/31/71-07/31/76 FY76: \$114,474 TOTAL: \$498,243
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. ARC/Quaide, W. L. 32-Geological Sci
Aggarwal, H. ARC/Farlow, N. F.
Schultz, P. H.

NSG 2106 **University of Santa Clara** **1700**
Command generators for total automatic flight control research
Period *Obligations*
10/01/75-09/30/76 FY76: \$26,706 TOTAL: \$26,706
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weissenberger, S. ARC/Meyer, G. 41-Aero Engr

NGR 05-017-031 **University of Santa Clara** **1694**
Evaluation of STOL navigation avionics
Period *Obligations*
05/10/72-09/15/76 FY76: TOTAL: \$140,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dunn, W. R. ARC/Hruby, R. J. 41-Aero Engr

NSG 2153 **University of Santa Clara** **1701**
Study of the requirements of the 1979 World Administrative Radio Conference with respect to the search for extraterrestrial intelligence
Period *Obligations*
05/01/76-08/31/76 FY76: \$10,890 TOTAL: \$10,890
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stull, M. A. ARC/Billingham, J. 99-Multi-Discip
ARC/Wolfe, J. H.

NGR 05-017-033 **University of Santa Clara** **1695**
Study of viscous flow fields
Period *Obligations*
09/05/72-12/31/76 FY76: \$49,119 TOTAL: \$202,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cheng, D. Y. ARC/Buell, D. A. 41-Aero Engr
ARC/Muhlstein, L., Jr.

NSG 7141 **University of Santa Clara** **1702**
Analysis of lunar mare emplacement
Period *Obligations*
05/01/75-02/28/77 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-SL/Williams, R. J. 32-Geological Sci
Schultz, P. H.

NGR 05-017-037 **University of Santa Clara** **1696**
Mapping geology of Mars quadrangle MC-6
Period *Obligations*
01/01/73-08/31/76 FY76: \$31,312 TOTAL: \$80,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greeley, R. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NAS 2-6558 **University of Southern California** **1703**
Pioneer F/G analysis of ultraviolet experiment
Period *Obligations*
09/01/71-06/30/76 FY76: \$178,578 TOTAL: \$730,205
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Judge, D. L. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NASA'S UNIVERSITY PROGRAM **CALIFORNIA (Continued)**

NAS 2-7969 **University of Southern California** **1704**
Pioneer F/G data analysis

| Period | Obligations | |
|---------------------|--------------------|------------------|
| 12/05/73-06/30/76 | FY76: \$90,832 | TOTAL: \$205,697 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Intriligator, D. S. | ARC/Hall, C. F. | 11-Astronomy |
| | ARC/Porter, D. L. | |

NAS 3-17857 **University of Southern California** **1705**
Jet noise basic research program

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/29/73-06/28/74 | FY76: | TOTAL: \$27,290 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Laufer, J. | LERC/Dorsch, R. G. | 41-Aero Engr |

NAS 5-21505 **University of Southern California** **1706**
Advanced data compression experiments

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/04/70-06/30/76 | FY76: \$35,046 | TOTAL: \$329,926 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Davisson, L. D. | GSFC/Kutz, R. L. | 45-Elec Engr |

NAS 8-29847 **University of Southern California** **1707**
Study of analytics of crystal growth in space

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 06/05/73-12/17/75 | FY76: | TOTAL: \$70,030 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wilcox, W. R. | MSFC/Ruff, R. C. | 13-Physics |
| | MSFC/Facemire, B. R. | |

NAS 9-6164 **University of Southern California** **1708**
Proton accelerator studies

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 06/01/66-06/01/77 | FY76: | TOTAL: \$8,004 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | JSC/Unavailable | 13-Physics |

NASW 2771 **University of Southern California** **1709**
Operation of the western research applications center

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 02/01/75-12/31/75 | FY76: \$398,263 | TOTAL: \$513,463 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | HQ-KT/Holley, H. L. | 99-Multi-Discip |

NCA 2-730501 **University of Southern California** **1710**
Application of transonic lifting-line method to oblique wings

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 07/01/74-02/01/75 | FY76: | TOTAL: \$9,908 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cheng, H. K. | ARC/Zill, L. P. | 41-Aero Engr |

NCA 2-730601 **University of Southern California** **1711**
Application of transonic lifting-line method to oblique wings

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/01/75-09/30/76 | FY76: \$14,557 | TOTAL: \$14,557 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cheng, H. K. | ARC/Zill, L. P. | 41-Aero Engr |

NGL 05-018-118 **University of Southern California** **1712**
Advanced communications techniques

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/09/69-07/31/78 | FY76: | TOTAL: \$130,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Andrews, H. C. | GSFC/Kutz, R. L. | 45-Elec Engr |

NGR 05-018-178 **University of Southern California** **1713**
Dynamics of rotating-stratified flows with applications to the Jovian atmosphere

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 09/11/72-08/31/76 | FY76: \$38,121 | TOTAL: \$156,940 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Maxworthy, T. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

NGR 05-018-180 **University of Southern California** **1714**
Photon-molecule interaction studies of the atmospheric gases

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 08/31/72-12/31/76 | FY76: \$52,540 | TOTAL: \$159,028 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Judge, D. L. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

NGR 05-018-181 **University of Southern California** **1715**
Analysis of Pioneer solar wind observations of the interplanetary medium

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 10/25/72-09/30/76 | FY76: \$30,000 | TOTAL: \$185,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vasyliunas, V. M. | HQ-ST/Cauffman, D. P. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

NGR 05-018-185 **University of Southern California** **1716**
Study of the structure of magnetopause using simultaneous OGO-5 magnetic field light ion mass

| Period | Obligations | |
|---------------------|----------------------|-----------------|
| 06/27/73-06/30/77 | FY76: | TOTAL: \$25,795 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Intriligator, D. S. | HQ-SA/Calahan, H. D. | 13-Physics |

NSG 1221 **University of Southern California** **1717**
Investigation of jet shear layer mechanisms and their phase relation to radiated sound

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/05/75-08/04/76 | FY76: \$30,001 | TOTAL: \$30,001 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Laufer, J. | LARC/Seiner, J. M. | 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM CALIFORNIA (Continued)

NSG 3025 **University of Southern California** **1718**
Basic noise research program

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/28/74-12/27/75 | FY76: \$32,758 | TOTAL: \$32,758 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Laufer, J. | LERC/Olsen, W. A. | 41-Aero Engr |

NAS 5-22959 **Colorado State University** **1724**
Earth radiation budget sensor support

| Period | Obligations | |
|--------------------|--------------------|-----------------|
| 01/23/76-01/22/79 | FY76: \$10,000 | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vonder Haar, T. H. | GSFC/Nelson, D. | 39-Env Sci, NEC |

NSG 5108 **University of Southern California** **1719**
Rocket experiments to measure the solar intensity and profile

| Period | Obligations | |
|-------------------|--------------------------|-----------------|
| 04/01/76-09/30/76 | FY76: \$60,000 | TOTAL: \$60,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Judge, D. L. | GSFC/Bissell, E. E., Jr. | 13-Physics |
| Carlson, R. W. | HQ-SL/Fellows, R. F. | |

NAS 8-28590 **Colorado State University** **1725**
Feasibility of remote evaporation and precipitation estimates

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/18/72-06/30/74 | FY76: | TOTAL: \$99,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sadeh, W. Z. | MSFC/Turner, R. E. | 39-Env Sci, NEC |
| Ruff, T. F. | | |

COLORADO

NGL 06-001-015 **Colorado School of Mines** **1720**
Application of remote sensor data to geologic & economic analyses of the bonanza test site

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 03/11/69-09/30/76 | FY76: | TOTAL: \$732,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lee, K. | HQ-ER/Morrison, J. R. | 39-Env Sci, NEC |

NAS 8-29583 **Colorado State University** **1726**
Wind tunnel investigation of wakes downwind of buildings and natural obstacles

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/23/73-04/30/76 | FY76: | TOTAL: \$96,124 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cermak, J. E. | MSFC/Cliff, W. C. | 44-Civil Engr |
| Peterka, J. A. | MSFC/Camp, D. W. | |

NAS 1-12106 **Colorado State University** **1721**
Development of data test sets & simulation models for long term zonal earth energy budget experiment

| Period | Obligations | |
|--------------------|---------------------|-----------------|
| 02/06/73-06/30/76 | FY76: \$10,000 | TOTAL: \$99,732 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vonder Haar, T. H. | LARC/Sweet, G. E. | 31-Atmos Sci |
| | LARC/Woerner, C. V. | |

NAS 8-30250 **Colorado State University** **1727**
Application of electro-hydrodynamic phenomena to space processing

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 02/01/74-02/28/75 | FY76: | TOTAL: \$15,001 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Jones, T. B. | MSFC/Berge, L. H. | 45-Elec Engr |
| Wilmsen, C. W. | MSFC/Wuenschner, H. E. | |

NAS 2-6615 **Colorado State University** **1722**
Study plant tumor tissues on clinostats & in space environment

| Period | Obligations | |
|----------------------|--------------------|------------------|
| 09/10/71-12/10/76 | FY76: \$53,616 | TOTAL: \$163,895 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Baker, R. | ARC/Tremor, J. W. | 59-Life Sci, NEC |
| Kleinschuster, S. J. | ARC/Johnson, R. | |

NAS 8-31237 **Colorado State University** **1728**
Turbulence model statistical simulation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/14/75-03/05/76 | FY76: | TOTAL: \$21,977 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winn, C. B. | MSFC/Cliff, W. C. | 46-Mech Engr |
| Johnson, G. R. | MSFC/Fichtl, G. H. | |

NAS 5-22372 **Colorado State University** **1723**
Solar energy microclimate study

| Period | Obligations | |
|--------------------|------------------------|-----------------|
| 05/12/75-11/12/76 | FY76: \$32,000 | TOTAL: \$62,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vonder Haar, T. H. | GSFC/Thekaekara, M. P. | 41-Aero Engr |
| Ellis, J. S. | | |

NAS 8-31347 **Colorado State University** **1729**
Assessment of geophysical flows for zero-gravity simulation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/01/75-09/30/76 | FY76: \$27,529 | TOTAL: \$52,529 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winn, C. B. | MSFC/Fichtl, G. H. | 49-Engr, NEC |
| Thompson, E. G. | MSFC/Camp, D. W. | |

NAS 8-31673 **Colorado State University** **1730**
Zero-gravity aerosol behavior

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/08/75-11/07/76 | FY76: \$24,878 | TOTAL: \$24,878 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Edwards, H. W. | MSFC/Fichtl, G. H. | 46-Mech Engr |
| | MSFC/Morgan, S. H. | |

NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)

NAS 8-31688 **Colorado State University** **1731**
Study of zero-gravity two-phase turbulence
Period *Obligations*
11/06/75-11/05/76 **FY76: \$30,800** **TOTAL: \$30,800**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sandhorn, V. A. MSFC/Fichtl, G. H. 44-Civil Engr
MSFC/Camp, D. W.

NAS 9-14467 **Colorado State University** **1732**
Modeling of wheat signatures for signature extension
Period *Obligations*
11/15/74-11/14/76 **FY76: \$31,750** **TOTAL: \$64,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, J. A. JSC/Barnett, T. L. 39-Env Sci, NEC
JSC/Potter, A. E.

NAS 9-14765 **Colorado State University** **1733**
Skylab results
Period *Obligations*
09/01/75-06/30/76 **FY76: \$18,500** **TOTAL: \$18,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marlatt, W. E. JSC/Byrns, Z. H. 31-Atmos Sci

NCA 2-165502 **Colorado State University** **1734**
Experimental turbulence modeling
Period *Obligations*
12/01/74-06/30/75 **FY76:** **TOTAL: \$9,733**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sandborn, V. A. ARC/Zill, L. P. 41-Aero Engr

NCA 2-165503 **Colorado State University** **1735**
Theoretical investigations of frequency up-conversion of infrared laser radiation by diatomic molecules
Period *Obligations*
01/01/75-12/31/75 **FY76:** **TOTAL: \$5,256**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
She, C. Y. ARC/Zill, L. P. 13-Physics

NCA 2-165603 **Colorado State University** **1736**
Theoretical investigations of frequency up-conversion
Period *Obligations*
01/01/76-06/30/76 **FY76: \$5,000** **TOTAL: \$5,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
She, C. Y. ARC/Zill, L. P. 45-Elec Engr

NCA 2-165604 **Colorado State University** **1737**
Experimental turbulence modeling
Period *Obligations*
01/01/76-10/31/76 **FY76: \$14,992** **TOTAL: \$14,992**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sandborn, V. A. ARC/Zill, L. P. 13-Physics

NGR 06-002-075 **Colorado State University** **1738**
Metabolic effects of artificial environment
Period *Obligations*
10/18/68-10/31/76 **FY76: \$30,000** **TOTAL: \$288,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jordan, J. P. ARC/Holton, E. M. 51-Biology
Schatte, C. L.

NGR 06-002-095 **Colorado State University** **1739**
Combustion instability with partial length acoustic lines
Period *Obligations*
12/02/69-08/31/76 **FY76: \$34,523** **TOTAL: \$264,536**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mitchell, C. E. LERC/Priem, R. J. 42-Astro Engr

NGR 06-002-098 **Colorado State University** **1740**
Atmospheric transport processes as evaluated from Nimbus III satellite data
Period *Obligations*
04/13/70-10/31/76 **FY76: \$41,069** **TOTAL: \$278,856**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reiter, E. R. GSFC/Theon, J. S. 31-Atmos Sci
Vonder Haar, T. H.
Cox, S. K.

NGR 06-002-102 **Colorado State University** **1741**
Studies of radiation measurements from polar and geosynchronous satellites
Period *Obligations*
09/23/70-10/31/76 **FY76: \$60,000** **TOTAL: \$341,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vonder Haar, T. H. GSFC/Curran, R. J. 31-Atmos Sci

NGR 06-002-112 **Colorado State University** **1742**
An experimental investigation of hollow cathode discharge start-up and operation
Period *Obligations*
12/21/70-12/01/76 **FY76: \$63,538** **TOTAL: \$301,327**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilbur, P. J. LERC/Kerslake, W. R. 46-Mech Engr

NGR 06-002-127 **Colorado State University** **1743**
Investigation of electrohydrodynamic heat pipes
Period *Obligations*
04/29/71-10/31/76 **FY76: \$13,881** **TOTAL: \$69,944**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Loehrke, R. I. ARC/Debs, R. J. 46-Mech Engr
Jones, T. B. ARC/Kirkpatrick, J. P.

NGR 06-002-128 **Colorado State University** **1744**
Effect of cosmic radiation
Period *Obligations*
08/31/72-08/31/76 **FY76: \$60,000** **TOTAL: \$264,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lett, J. T. JSC/Hoffman, R. A. 51-Biology

NASA'S UNIVERSITY PROGRAM

COLORADO (Continued)

NGR 06-002-147 **Colorado State University** **1745**
Theoretical investigations on plasma processes in the Kaufman thruster

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/14/72-08/31/76 | FY76: \$27,350 | TOTAL: \$109,400 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Wilhelm, H. E. | LERC/Serafini, J. S. | 42-Astro Engr |

NGR 06-002-159 **Colorado State University** **1746**
Bulk properties of atomic triplet hydrogen & high pressure equation of state for solid hydrogen

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 12/04/72-10/19/76 | FY76: \$35,095 | TOTAL: \$91,765 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Etters, R. D. | LERC/Brown, G. V. | 13-Physics |

NGR 06-002-191 **Colorado State University** **1747**
Impact studies on computer needs for a whole earth dynamical model

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/74-09/30/76 | FY76: \$35,000 | TOTAL: \$50,607 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Thompson, E. G. | GSFC/Carpenter, L. H. | 32-Geological Sci |
| Winn, C. B. | GSFC/Smith, D. E. | |

NSG 1215 **Colorado State University** **1748**
Airborne measurements of the radio emissions spectrum and environmental variables of severe storm

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/75-06/30/76 | FY76: | TOTAL: \$26,600 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sinclair, P. C. | LARC/Costen, R. C. | 31-Atmos Sci |
| | GSFC/Levine, D. M. | |

NSG 2009 **Colorado State University** **1749**
Research of ultrasonic methods for hemodynamic measurements

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/74-07/31/76 | FY76: | TOTAL: \$50,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sun, C. T. | ARC/Rositano, S. A. | 45-Elec Engr |
| McLoed, F. D. | ARC/McCutcheon, E. P. | |
| Miller, C. W. | | |

NSG 3011 **Colorado State University** **1750**
Experimental investigations of argon and xenon ion sources

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/74-07/31/77 | FY76: \$100,490 | TOTAL: \$150,687 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kaufman, H. R. | LERC/Mirtich, M. J. | 42-Astro Engr |
| | LERC/Byers, D. C. | |

NSG 3038 **Colorado State University** **1751**
Plasma interaction between ion thruster and solar array

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/74-10/22/76 | FY76: \$20,470 | TOTAL: \$36,320 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kaufman, H. R. | LERC/Domitz, S. | 19-Phys Sci, NEC |
| Wilbur, P. J. | | |

NSG 3060 **Colorado State University** **1752**
Experimental measurement of thermal energy charge-transfer cross-sections of interest in rare-gas metal-vapor lasers

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/75-02/28/77 | FY76: \$26,841 | TOTAL: \$51,832 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Collins, G. J. | LERC/Chubb, D. L. | 13-Physics |
| | LERC/Michels, C. J. | |

NSG 3086 **Colorado State University** **1753**
Industrial ion source technology

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/15/75-11/15/76 | FY76: \$49,881 | TOTAL: \$49,881 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kaufman, H. R. | LERC/Theman, E. R. | 13-Physics |
| | LERC/Terdan, F. F. | |

NSG 5011 **Colorado State University** **1754**
Satellite support to weather modification

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/15/74-08/14/76 | FY76: \$30,000 | TOTAL: \$89,074 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Vonder Haar, T. H. | GSFC/Adler, R. F. | 31-Atmos Sci |
| Grant, L. O. | | |

NSG 5073 **Colorado State University** **1755**
Project NOWCAST (short term forecasting of weather)

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 12/01/75-09/30/76 | FY76: \$49,665 | TOTAL: \$49,665 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Marlatt, W. E. | GSFC/Neil, E. A. | 31-Atmos Sci |

NSG 5105 **Colorado State University** **1756**
Aircraft measurements and analysis of severe storms

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/76-10/31/76 | FY76: \$170,000 | TOTAL: \$170,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sinclair, P. C. | GSFC/Rados, R. M. | 31-Atmos Sci |
| | GSFC/Shenk, W. E. | |

NSG 9037 **Colorado State University** **1757**
Characterization of lunar ferromagnetic phases by effective linewidth method

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/01/75-01/31/77 | FY76: \$15,600 | TOTAL: \$15,600 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Patton, C. E. | JSC/Harris, J. W. | 13-Physics |

NASA'S UNIVERSITY PROGRAM COLORADO (Continued)

| | | |
|---|---|----------------------|
| NAS 2-8816 | University of Colorado - Boulder | 1758 |
| Design and development of a Pioneer/Venus orbiting ultraviolet spectrometer | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/01/75-08/31/78 | FY76: \$427,000 | TOTAL: \$525,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Stewart, A. I. | ARC/Sinnott, D. B. | 19-Phys Sci, NEC |
| | ARC/Sperans, J. | |

| | | | |
|---|---------------------------|---|-------------|
| NAS 5-11405 | | University of Colorado - Boulder | 1759 |
| University of Colorado ultraviolet nitric oxide experiment for atmosphere Explorer | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 03/17/71-10/06/77 | FY76: \$109,000 | TOTAL: \$833,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Barth, C. A. | GSFC/Findlay, J. A. | 31-Atmos Sci | |

| NAS 5-20914 University of Colorado - Boulder 1760 ERTS data follow-on investigation | |
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| <i>Period</i> | <i>Obligations</i> |
| 02/28/75-12/28/76 | FY76: TOTAL: \$82,035 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Ives, J. D. GSFC/Broderick, J. C. 32-Geological Sci |

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| NAS 5-20948 | | University of Colorado - Boulder | 1761 |
| ERTS follow-on investigation | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 02/20/75-09/20/76 | FY76: | TOTAL: | \$141,561 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Krebs, P. | GSFC/Szajna, E. F. | 59-Life Sci, NEC | |

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| NAS 5-22409 | University of Colorado - Boulder | 1762 |
| Reduction and analysis of data from the OSO-1 high resolution ultraviolet spectrometer experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/26/75-06/25/77 | FY76: \$807,126 | TOTAL: \$942,126 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Bruner, E. C., Jr. | GSFC/Worrall, W. | 31-Atmos Sci |

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| NAS 5-22440 | University of Colorado - Boulder | 1763 |
| Planetary atmospheric dynamics program | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/20/75-07/20/76 | FY76: | TOTAL: \$20,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hard, C. | GSFC/Pirraglia, J. | 31-Atmos Sci |
| Dickinson, R. | | |

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| NAS 5-22833 | University of Colorado - Boulder | 1764 |
| Theoretical calculations of spectral features in the expanding envelopes of early-type stars | | |
| <i>Period</i> | <i>Obligations</i> | |
| 11/03/75-12/03/77 | FY76: \$21,780 | TOTAL: \$21,780 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Conti, P. S. | GSFC/Underhill, A. B. | 11-Astronomy |

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| NAS 5-22960 | University of Colorado - Boulder | 1765 |
| Solar mesospheric Explorer definition study | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/03/75-02/29/76 | FY76: \$31,540 | TOTAL: \$31,540 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barth, C. A. | GSFC/Weinreb, M. R. | 11-Astronomy |

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|---|---|------------------------|
| NAS 5-23274 | University of Colorado - Boulder | 1766 |
| Development of models for physical properties of stellar chromospheres | | |
| <i>Period</i> | <i>Obligations</i> | |
| 08/01/73-09/30/76 | FY76: \$18,237 | TOTAL: \$49,528 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Linsky, J. L. | GSFC/Underhill, A. B. | 11-Astronomy |

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|--|---|----------------------|
| NAS 5-23346 | University of Colorado - Boulder | 1767 |
| Atmosphere, magnetosphere and plasmas in space sounder study | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/27/76-05/27/76 | FY76: \$9,770 | TOTAL: \$9,770 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Calvert, W. | GSFC/Benson, R. F. | 31-Atmos Sci |

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|---|---|----------------------|
| NAS 5-23577 | University of Colorado - Boulder | 1768 |
| Solar maximum mission ultra-violet spectrometer and polarimeter review and analysis | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/16/76-10/31/76 | FY76: \$20,774 | TOTAL: \$20,774 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gause, K. | GSFC/Kalet, M. W. | 11-Astronomy |
| | GSFC/Woodgate, B. E. | |

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|--|---|----------------------|
| NAS 8-31378 | University of Colorado - Boulder | 1769 |
| Study of the solar corona using radio observations and Skylab observations | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/20/75-06/30/76 | FY76: | TOTAL: \$29,990 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dulk, G. A. | MSFC/Bass, B. G. | 13-Physics |
| | MSFC/Haggard, M. | |

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| NAS 8-31619 | University of Colorado - Boulder | 1770 |
| Coupled base motion response analysis of payload structure systems | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/14/75-02/27/76 | FY76: \$9,958 | TOTAL: \$9,958 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Feng, C. C. | MSFC/Holland, W. B. | 46-Mech Engr |
| | MSFC/Bullock, T. | |

| NAS 8-31958 | University of Colorado - Boulder | 1771 |
|---|---|------------------------|
| Study of geophysical fluid dynamics with electro-hydrodynamics polarization forces | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/26/76-12/26/76 | FY76: \$32,000 | TOTAL: \$32,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Toomre, J. | MSFC/Fichtl, G. H. | 39-Env Sci, NEC |
| Hart, J. F. | MSFC/Camp, D. W. | |

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|---|---|----------------------|
| NASW 2913 | University of Colorado - Boulder | 1772 |
| Counting imaging detector using microchannel plates | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/21/76-10/20/76 | FY76: \$35,615 | TOTAL: \$35,615 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Laurence, G. M. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |
| | HO-SA/Roman, N. G. | |

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|---|---|----------------------|
| NGL 06-003-052 | University of Colorado - Boulder | 1773 |
| Theoretical and experimental research program in physics of planetary atmospheres | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/28/66-06/30/78 | FY76: \$348,334 | TOTAL: \$3,548,348 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barth, C. A. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

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|---------------------------------|---|----------------------|
| NGL 06-003-057 | University of Colorado - Boulder | 1774 |
| Basic research in solar physics | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/05/67-08/30/76 | FY76: \$114,030 | TOTAL: \$778,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cooper, J. | HQ-ST/Timothy, A. F. | 13-Physics |
| Linskv. J. L. | | |

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|---|-----------------------------|---|--------------------|
| NGL 06-003-064 | | University of Colorado - Boulder | 1775 |
| Rocket research program in the ultraviolet airglow and aurora of planetary atmospheres | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 11/30/67-08/31/77 | FY76: | TOTAL: | \$1,289,122 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Barth, C. A. | HO-SL/Fellows, R. F. | 31-Atmos Sci | |

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|---|---|----------------------|
| NGL 06-003-200 | University of Colorado - Boulder | 1776 |
| Application of space technology to practical problems such as those currently facing the mountain sections of the State of Colorado | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/11/72-04/30/79 | FY76: \$100,000 | TOTAL: \$525,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ives, J. D. | HO-P/Vitale, J. A. | 39-Env Sci. NEC |

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|------------------------|---------------------------|----------------------------------|------|
| NGR 06-003-069 | | University of Colorado - Boulder | 1777 |
| Solar physics research | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 11/29/67-04/30/77 | FY76: \$134,037 | TOTAL: \$1,142,838 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Barth, C. A. | HO-ST/Timothy, A. F. | 11-Astronomy | |

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|--|----------------------------------|----------------------|
| NGR 06-003-127 | University of Colorado - Boulder | 1778 |
| Data reduction-coordinated experiments | | |
| <i>Period</i> | <i>Obligations</i> | |
| 08/18/69-06/30/77 | FY76: | TOTAL: \$753,681 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barth, C. A. | HQ-SL/Brunk, W. E. | 31-Atmos Sci |
| | HO-SL/Fellows, R. F. | |

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|--|----------------------------------|----------------------|
| NGR 06-003-176 | University of Colorado - Boulder | 1779 |
| Rocket research program in stellar ultraviolet astronomy | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/29/71-01/31/77 | FY76: \$150,000 | TOTAL: \$286,255 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lillie, C. F. | GSFC/Bissell, E. E., Jr. | 11-Astronomy |
| | HO-SA/Rosendhal, J. D. | |

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|------------------------------|---------------------------|----------------------------------|----------------------|
| NGR 06-003-179 | | University of Colorado - Boulder | 1780 |
| OAO-II data analysis program | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 06/07/71-03/31/78 | FY76: | | TOTAL: \$41,100 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | | <i>CASE Category</i> |
| Lillie, C. F. | HO-SA/Roman, N. G. | | 11-Astronomy |

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|------------------------------|---|----------------------|
| NGR 06-003-181 | University of Colorado - Boulder | 1781 |
| Lunar sample analysis | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/24/71-01/31/77 | FY76: \$24,420 | TOTAL: \$133,170 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Larson, E. E. | JSC/Harris, J. W. | 13-Physics |

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|---|---|----------------------|
| NGR 06-003-199 | University of Colorado - Boulder | 1782 |
| Geologic analysis of Martian surface features from Mariner 9 photography as a basis for systematic geologic mapping of Mars | | |
| <i>Period</i> | | <i>Obligations</i> |
| 05/24/72-10/31/76 | FY76: | TOTAL: \$32,842 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Peterson, J. E. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HO-SL/Holt, H. E. | |

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|---|----------------------------------|----------------------|
| NGR 06-003-208 | University of Colorado - Boulder | 1783 |
| Energy transfer in isotropic turbulence | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/05/72-08/31/76 | FY76: \$10,000 | TOTAL: \$66,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Uberoi, M. S. | LERC/Deissler, R. G. | 41-Aero Engr |

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|---|---|------------------------|
| NGR 06-003-215 | University of Colorado - Boulder | 1784 |
| Analysis of satellite data from the magnetosphere and comparison with ground-based data | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/73-10/31/76 | FY76: | TOTAL: \$29,957 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Speiser, T. W. | HO-SA/Mitchell, J. L. | 13-Physics |

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|--|---|----------------------|
| NGR 06-003-216 | University of Colorado - Boulder | 1785 |
| Physical properties of chromospheric active and quiet regions by the analysis of existing OSO-4 and OSO-6 EUV data | | |
| <i>Period</i> | <i>Obligations</i> | |
| 11/01/73-10/31/75 | FY76: | TOTAL: \$24,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Linsky, J. L. | HQ-SA/Calahan, H. D. HQ-SA/Oertel, G. K. | 11-Astronomy |

NASA'S UNIVERSITY PROGRAM

COLORADO (Continued)

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|---|----------------------------------|----------------------|
| NGR 06-003-219 | University of Colorado - Boulder | 1786 |
| High resolution spectrograph of large space telescope | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/73-02/29/76 | FY76: \$5,273 | TOTAL: \$17,566 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lillie, C. F. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meece, K. J. | |

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| NGR 06-003-222 | University of Colorado - Boulder | 1787 |
| Zodiacal light rocket research program | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/73-06/30/75 | FY76: | TOTAL: \$170,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lillie, C. F. | HQ-SA/Roman, N. G. | 11-Astronomy |
| | HO-SA/Logan, W. | |

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| NSG 1056 | University of Colorado - Boulder | 1788 |
| Theory of hypersonic flight | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/74-08/31/76 | FY76: | TOTAL: \$45,440 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Culp, R. D. | LARC/Rainey, R. W. | 41-Aero Engr |
| Busemann, A. | LARC/Queijo, M. J. | |

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| NSG 1140 | University of Colorado - Boulder | 1789 |
| Computer automation for feedback system design | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/75-06/30/76 | FY76: \$10,600 | TOTAL: \$29,035 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Horowitz, I. | LARC/Jones, R. L. | 45-Elec Engr |
| | LARC/Schy, A. A. | |

| NSG 1213 | University of Colorado - Boulder | 1790 |
|--|----------------------------------|-----------------|
| Design of noninteracting flight control systems in the presence of large parameter variations and disturbances | | |
| Period | Obligations | |
| 07/01/75-09/30/76 | FY76: | TOTAL: \$19,986 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wang, S. H. | LARC/Schy, A. A. | 45-Elec Engr |
| Dorato, P. | LARC/Hamer, H. A. | |

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| NSG 2055 | University of Colorado - Boulder | 1791 |
| Computer control of AIRO telescopes | | |
| <i>Period</i> | <i>Obligations</i> | |
| 11/01/74-10/31/76 | FY76: | TOTAL: \$21,450 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Webb, W. | ARC/Cameron, R. M. | 11-Astronomy |
| Linsky, J. L. | ARC/Gillespie, C. M., Jr. | |

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|---|---|----------------------|
| NSG 2126 | University of Colorado - Boulder | 1792 |
| Overhead and theoretical variations of atmospheric ozone | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/76-08/31/76 | FY76: \$14,506 | TOTAL: \$14,506 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| London, J. | ARC/Poppoff, I. G. | 31-Atmos Sci |
| | ARC/Whitten, R. C. | |

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|--|---|------------------------|
| NSG 2128 | University of Colorado - Boulder | 1793 |
| Self-synchronizing schlieren photography and interferometry for the visualization of unsteady transonic flows | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/01/75-11/30/76 | FY76: \$17,768 | TOTAL: \$17,768 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kadlec, R. A. | ARC/Davis, S. S. | 41-Aero Engr |
| | ARC/Coe, C. F. | |

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|---|---|----------------------|
| NSG 5098 | University of Colorado - Boulder | 1794 |
| Copernicus observations of oe and oef stars | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/01/76-02/28/77 | FY76: \$7,979 | TOTAL: \$7,979 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Conti, P. S. | GSFC/Kupperian, J. E. | 11-Astronomy |

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|--|---|----------------------|
| NSG 5103 | University of Colorado - Boulder | 1795 |
| Rocket research in the ultraviolet airglow and aurora of planetary atmospheres | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/76-01/31/77 | FY76: \$150,000 | TOTAL: \$150,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barth, C. A. | GSFC/Bissell, E. E., Jr. | |
| Thomas, R. J. | HQ-SL/Fellows, R. F. | 19-Phys Sci, NEC |

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|---|---|----------------------|
| NSG 7128 | University of Colorado - Boulder | 1796 |
| Studies of X-ray ultraviolet and optical emission from galactic X-ray sources | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/01/75-06/30/77 | FY76: \$30,000 | TOTAL: \$40,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| McCray, R. | HQ-SA/Sofia, S. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

| NSG 7130 | | University of Colorado - Boulder | 1797 |
|-----------------------------------|---------------------------|----------------------------------|------|
| OSO-I guest investigation program | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 04/01/75-09/30/76 | FY76: \$50,000 | TOTAL: \$80,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Bruner, E. C., Jr. | HO-ST/Timothy, A. F. | 13-Physics | |

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|---|---|------------------------|
| NSG 7165 | University of Colorado - Boulder | 1798 |
| Theoretical studies of the solar corona and chromosphere | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/75-08/31/76 | FY76: \$35,000 | TOTAL: \$35,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barth, C. A. | HO-ST/Timothy, A. F. | 13-Physics |

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|--|---|----------------------|
| NSG 7166 | University of Colorado - Boulder | 1799 |
| Physical mechanisms linking solar activity and/or geomagnetic disturbance with the large scale atmospheric circulation | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/75-06/30/77 | FY76: \$15,000 | TOTAL: \$15,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Roberts, W. O. | HO-ST/Timothy, A. F. | 13-Physics |

NASA'S UNIVERSITY PROGRAM
COLORADO (Continued)

NSG 7224 **University of Colorado - Boulder** **1800**
Observed and theoretical variations of atmospheric ozone

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/76-01/31/77 | FY76: \$39,915 | TOTAL: \$39,915 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| London, J. | HQ-SU/King, J., Jr. | 31-Atmos Sci |
| | HQ-SU/Reed, E. F. | |

NSG 7231 **University of Colorado - Boulder** **1801**
A rocket program to measure minor neutral species in the earth's atmosphere from 30 km to 110 km

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/01/76-10/31/76 | FY76: \$100,000 | TOTAL: \$100,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Thomas, R. J. | HQ-SU/King, J., Jr. | 31-Atmos Sci |
| | HQ-SU/Reed, E. I. | |

NSG 9036 **University of Colorado - Boulder** **1802**
Correlation of strength with q and velocity in lunar rock under simulated conditions

| <i>Period</i> | <i>Obligations</i> | |
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| 11/01/75-01/31/77 | FY76: \$92,767 | TOTAL: \$92,767 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Spetzler, H. A. | JSC/Harris, J. W. | 32-Geological Sci |

NAS 2-8200 **University of Denver** **1803**
Detectability of atmospheric species

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/01/74-12/31/77 | FY76: \$197,266 | TOTAL: \$290,996 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Murcay, D. G. | ARC/Munoz, R. M. | 13-Physics |

NAS 5-22981 **University of Denver** **1804**
Measurement of soft energetic X-rays

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/18/76-12/31/76 | FY76: \$17,375 | TOTAL: \$17,375 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barcus, J. R. | GSFC/Goldberg, R. | 19-Phys Sci, NEC |

NAS 5-23190 **University of Denver** **1805**
GHz parametric amplifier

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/16/73-07/31/76 | FY76: | TOTAL: \$16,972 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Edrich, J. | GSFC/Hobbs, R. W. | 13-Physics |

NASW 2607 **University of Denver** **1806**
The collection and analysis of information relating to technology transfer and application

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/12/74-01/13/75 | FY76: | TOTAL: \$220,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-KT/Ault, L. A. | 75-Political Sci |

NASW 2766 **University of Denver** **1807**
Program for transfer research and impact studies

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/75-01/31/76 | FY76: \$86,859 | TOTAL: \$311,859 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Freeman, J. E. | HQ-KT/Ault, L. A. | 99-Multi-Discip |

NASW 2892 **University of Denver** **1808**
Collection and analysis of information relating to technology transfer and application

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/76-01/31/77 | FY76: \$350,000 | TOTAL: \$350,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, F. D. | HQ-KT/Ault, L. A. | 99-Multi-Discip |
| | HQ-KT/Orrick, D. W. | |

NGR 06-004-058 **University of Denver** **1809**
Study of hydromagnetic disturbances in the geomagnetic field at satellite altitudes

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/02/68-04/30/77 | FY76: \$10,000 | TOTAL: \$138,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Patel, V. L. | HQ-ST/Schmerling, E. R. | 13-Physics |

NGR 06-004-060 **University of Denver** **1810**
Study of physical processes which govern the dynamics of geomagnetically trapped radiation

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/08/68-05/31/77 | FY76: \$47,000 | TOTAL: \$215,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Roederer, J. G. | HQ-ST/Taylor, W. W. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

NGR 06-004-123 **University of Denver** **1811**
Study of geomagnetic storms

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/10/73-03/30/75 | FY76: | TOTAL: \$19,867 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Patel, V. L. | HQ-SA/Calahan, H. D. | 13-Physics |

NGR 06-004-125 **University of Denver** **1812**
Nitrogen management in solid waste management systems in space cabin atmospheric environment

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/22/73-03/31/77 | FY76: \$14,123 | TOTAL: \$70,478 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ross, L. W. | ARC/Quattrone, P. D. | 12-Chemistry |
| Schmelling, W. | | |

NSG 5004 **University of Denver** **1813**
Research study of variable stars using data from OAO-2

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/74-04/30/75 | FY76: | TOTAL: \$7,449 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lesh, J. R. | GSFC/Kupperian, J. E. | 11-Astronomy |

NASA'S UNIVERSITY PROGRAM **COLORADO (Continued)**

NSG 5069 **University of Denver** **1814**
Cephei variable stars and line-profile variations in Cephei stars

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 07/01/75-06/30/76 | FY76: | TOTAL: \$11,517 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lesh, J. R. | GSFC/Kupperian, J. E. | 11-Astronomy |

NSG 2155 **University of Connecticut** **1820**
Interactive input system and 3-d graphics output study

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 05/01/76-11/30/76 | FY76: \$18,002 | TOTAL: \$18,002 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| White, P. R. | ARC/Gregory, T. J. | 41-Aero Engr |
| | ARC/Carmichael, R. L. | |

NSG 2048 **University of Southern Colorado** **1815**
Technology research for strapdown inertial experiments

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/15/74-10/01/76 | FY76: \$33,994 | TOTAL: \$99,645 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Jenkins, R. | ARC/Hruby, R. J. | 41-Aero Engr |

NSG 5075 **University of Connecticut** **1821**
Modelling the terrestrial hydrology of the global atmosphere

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/17/75-08/16/76 | FY76: \$42,118 | TOTAL: \$42,118 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bock, P. | GSFC/Halem, M. | 31-Atmos Sci |

CONNECTICUT

NGR 07-010-002 **Fairfield University** **1816**
Investigation of energy deposition processes in the upper atmosphere, and the interaction between the mesosphere and the thermosphere

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/24/68-09/30/76 | FY76: | TOTAL: \$49,435 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McElaney, J. H. | GSFC/Heath, D. F. | 31-Atmos Sci |

W-14061 **University of Connecticut** **1822**
Earth Resources Space Applications to North Eastern Regional Problems - Symposium

| Period | Obligations | |
|---------------------|--------------------------|-----------------|
| 10/20/75-11/19/75 | FY76: \$1,575 | TOTAL: \$1,575 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Baldwin, R. C., Jr. | HQ-EK/Schweickart, R. L. | 39-Env Sci, NEC |
| | Tuyahov, A. | |

NAS 5-20841 **Yale University** **1823**
Large space telescope phase b study program

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/18/74-09/30/76 | FY76: \$3,870 | TOTAL: \$16,637 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Van Altena, W. F. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meese, K. J. | |

NAS 5-22539 **University of Connecticut** **1817**
Regional dissemination center operations support

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 07/01/75-12/31/76 | FY76: \$387,148 | TOTAL: \$387,148 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wilde, D. U. | GSFC/Friedman, D. S. | 99-Multi-Discip |

NGL 07-004-005 **Yale University** **1824**
Low-power, low-speed data storage and processing equipment

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 01/01/71-08/31/78 | FY76: \$52,000 | TOTAL: \$732,643 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Barker, R. C. | GSFC/Schaefer, D. H. | 45-Elec Engr |

NASW 2516 **University of Connecticut** **1818**
Regional dissemination center operation

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 06/28/73-06/30/75 | FY76: | TOTAL: \$424,947 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wilde, D. U. | HQ-KT/Holley, H. L. | 99-Multi-Discip |

NGL 07-004-043 **Yale University** **1825**
Chemical reactions in the electron-volt region

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 10/26/65-09/31/78 | FY76: \$44,000 | TOTAL: \$451,677 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cross, R. J., Jr. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

NSG 1082 **University of Connecticut** **1819**
Development of controlled speech stimuli for evaluating speech interference effects of time-varying and steady state aircraft noise

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/19/74-09/30/76 | FY76: \$25,000 | TOTAL: \$49,775 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cooker, H. S. | LARC/Mayer, W. H. | 49-Engr, NEC |
| McEwen, W. J. | | |

NGR 07-004-009 **Yale University** **1826**
Determination & analysis of properties & characteristics of extremely small free-living self-replicating cells

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 11/01/61-10/31/76 | FY76: \$24,000 | TOTAL: \$316,708 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Morowitz, H. J. | HQ-SB/Young, R. S. | 51-Biology |

NASA'S UNIVERSITY PROGRAM CONNECTICUT (Continued)

NGR 07-004-157 **Yale University** **1827**
Computative mineralogical composition of Martian surface
Period *Obligations*
07/10/72-05/31/75 **FY76:** **TOTAL: \$55,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Skinner, B. J. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NSG 1304 **University of Delaware** **1833**
Damage repair technology in composite materials
Period *Obligations*
05/01/76-04/30/77 **FY76: \$31,834** **TOTAL: \$31,834**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pipes, R. B. LARC/Deaton, J. W. 46-Mech Engr
Daugherty, R. L. LARC/Hoffman, E. L.

NGR 07-004-166 **Yale University** **1828**
Nonhomogeneous accumulation origin of pallasites and its bearing
on models of lunar and planetary formation
Period *Obligations*
06/15/73-02/28/77 **FY76:** **TOTAL: \$37,182**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turekian, K. K. HQ-SL/Williams, R. J. 32-Geological Sci

DISTRICT OF COLUMBIA

NAS 1-12209 **The American University** **1834**
Analytical investigation of data from Skylab/Earth Resources
Experiment Package (EREP) in wetlands areas
Period *Obligations*
04/06/73-07/15/75 **FY76:** **TOTAL: \$54,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, R. R. LARC/Johnson, R. W. 39-Env Sci, NEC
LARC/Whitlock, C. H.

DELAWARE

NGR 08-002-005 **Delaware State College** **1829**
Research on the photo detachment cross section and threshold
energy of negative ions in carbon dioxide
Period *Obligations*
03/16/73-09/30/76 **FY76:** **TOTAL: \$36,017**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helmy, E. M. GSFC/Aiken, A. C. 13-Physics
Woo, S. B.

NAS 5-21970 **The American University** **1835**
Study of ERTS imagery of West African countries
Period *Obligations*
10/05/73-02/04/75 **FY76:** **TOTAL: \$87,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacLeod, N. H. GSFC/Schubert, J. 39-Env Sci, NEC

NAS 1-12304 **University of Delaware** **1830**
Skylab earth resources experiment package application to
ecological, geological and oceanographic investigation of Delaware
Bay
Period *Obligations*
06/05/73-06/30/76 **FY76: \$6,041** **TOTAL: \$84,091**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klemas, V. LARC/Johnson, R. W. 39-Env Sci, NEC
Jordan, R. R.
Kinsman, B.

NGR 09-005-022 **Catholic University** **1836**
Genetic studies of hydrogen bacteria & their application to
biological life support systems
Period *Obligations*
05/04/65-04/01/76 **FY76:** **TOTAL: \$162,294**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Decicco, B. T. HQ-SB/Saunders, J. F. 51-Biology
HQ-SB/Coburn, K. R.

NAS 5-20983 **University of Delaware** **1831**
ERTS data follow-on investigation
Period *Obligations*
03/05/75-01/05/77 **FY76: \$3,000** **TOTAL: \$51,690**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klemas, V. GSFC/Crump, E. W. 33-Oceanography

NGR 09-005-063 **Catholic University** **1837**
Interaction of the solar wind with the moon
Period *Obligations*
04/15/69-05/31/77 **FY76: \$37,500** **TOTAL: \$179,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Whang, Y. C. HQ-ST/Taylor, W. W. 13-Physics
HQ-ST/Schmerling, E. R.

NSG 1149 **University of Delaware** **1832**
Determination of spectral reflectance signatures of coastal
pollutants
Period *Obligations*
02/10/75-01/09/77 **FY76: \$2,203** **TOTAL: \$32,493**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klemas, V. LARC/Collins, V. G. 39-Env Sci, NEC
Philpot, W. LARC/Wineman, A. R.

NGR 09-005-077 **Catholic University** **1838**
Detector development for the study of high energy cosmic rays
Period *Obligations*
09/01/71-02/29/76 **FY76:** **TOTAL: \$179,273**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crannell, H. GSFC/Fichtel, C. E. 12-Chemistry

NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)

NGR 09-005-099 Catholic University 1839
 Experimental study of the structure of turbulence with intermediate range of Reynolds numbers
Period Obligations
 09/19/72-06/30/76 FY76: \$10,200 TOTAL: \$25,840
Prin. Invest. NASA Tech. Officer CASE Category
 Ling, S. C. LERC/Deissler, R. G. 41-Aero Engr

NGR 09-005-103 Catholic University 1840
 Kinetics and mechanism of the reactions of O(3p) and H atoms and Ch3Cn and other nitriles
Period Obligations
 07/01/73-09/30/76 FY76: TOTAL: \$34,867
Prin. Invest. NASA Tech. Officer CASE Category
 Timmons, R. B. GSFC/Stief, L. J. 12-Chemistry

NSG 5066 Catholic University 1841
 Research of solar hard X-rays and gamma-rays
Period Obligations
 05/01/75-04/30/77 FY76: \$10,000 TOTAL: \$24,825
Prin. Invest. NASA Tech. Officer CASE Category
 Werntz, C. GSFC/Dennis, B. R. 13-Physics

NSG 5107 Catholic University 1842
 Research of ion resonance spectra
Period Obligations
 04/01/76-03/31/77 FY76: \$9,936 TOTAL: \$9,936
Prin. Invest. NASA Tech. Officer CASE Category
 Major, F. G. GSFC/Reinhardt, V. S. 13-Physics

NSG 5111 Catholic University 1843
 Research of properties of material in the submillimeter wave region
Period Obligations
 09/01/76-08/31/77 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. NASA Tech. Officer CASE Category
 Lally, J. GSFC/McAvoy, N. 13-Physics
 Meister, R. GSFC/McElroy, J. H.

NGR 09-053-002 District of Columbia Teachers College 1844
 Liquid surface sensing capability of polarized optical techniques
Period Obligations
 08/01/73-07/31/74 FY76: TOTAL: \$13,189
Prin. Invest. NASA Tech. Officer CASE Category
 Curtis, W. C. WFC/Holland, A. C. 19-Phys Sci, NEC
 WFC/Spinak, A. D.

NGR 09-053-003 District of Columbia Teachers College 1845
 Investigation of problems associated with solid encapsulation of high voltage electronic assemblies
Period Obligations
 04/15/74-04/14/77 FY76: \$9,524 TOTAL: \$51,883
Prin. Invest. NASA Tech. Officer CASE Category
 Bever, R. S. GSFC/Westrom, J. L. 39-Env Sci, NEC
 GSFC/Seidenberg, B.

NSG 6003 District of Columbia Teachers College 1846
 A polar nephelometer study of water surfaces
Period Obligations
 07/15/75-07/14/76 FY76: \$23,647 TOTAL: \$23,647
Prin. Invest. NASA Tech. Officer CASE Category
 Curtis, W. C. WFC/Holland, A. C. 19-Phys Sci, NEC

NGR 09-050-001 Federal City College 1847
 Study of detectors for extremely relativistic particles
Period Obligations
 10/07/69-04/30/77 FY76: \$2,359 TOTAL: \$212,149
Prin. Invest. NASA Tech. Officer CASE Category
 Whiteside, H. GSFC/McDonald, F. B. 13-Physics
 Rogers, E. H., Jr. GSFC/Ormes, J. F.

NGR 09-050-003 Federal City College 1848
 Fundamental and analytical investigations of mechanisms and phenomena related to spacecraft electrochemical devices
Period Obligations
 10/07/69-06/30/76 FY76: TOTAL: \$147,476
Prin. Invest. NASA Tech. Officer CASE Category
 Nottingham, W. C. GSFC/Webster, W. H., Jr. 11-Astronomy
 GSFC/Ford, F. E.

NGR 09-050-010 Federal City College 1849
 Laboratory investigation of different interstellar bands based on the spectra of tetraenzoporphin
Period Obligations
 01/25/72-09/30/74 FY76: TOTAL: \$18,025
Prin. Invest. NASA Tech. Officer CASE Category
 McDowell, H. HQ-P/Pohly, J. G. 11-Astronomy

NGR 09-050-013 Federal City College 1850
 Applications of medical information management systems
Period Obligations
 08/01/72-07/16/74 FY76: TOTAL: \$25,165
Prin. Invest. NASA Tech. Officer CASE Category
 Friedman, C. GSFC/Alterescu, S. 52-Clinical Med
 GSFC/Friedman, D. S.

NGR 09-050-019 Federal City College 1851
 Determination of heavy metals in sediments and benthic species in relation to nuclear power plant operation
Period Obligations
 02/18/74-09/30/76 FY76: TOTAL: \$49,759
Prin. Invest. NASA Tech. Officer CASE Category
 Phelps, H. L. GSFC/Nava, D. E. 39-Env Sci, NEC

NGR 09-050-020 Federal City College 1852
 Application of Alexeev's theorem to two-body perturbed problems
Period Obligations
 03/01/74-07/31/76 FY76: TOTAL: \$23,056
Prin. Invest. NASA Tech. Officer CASE Category
 Bakshi, J. S. GSFC/Fuchs, A. J. 21-Mathematics

NASA'S UNIVERSITY PROGRAM **DISTRICT OF COLUMBIA (Continued)**

NSG 5003 **Federal City College** **1853**
Characteristic functions and their applications in mathematical statistics

| Period | Obligations | |
|-------------------|-----------------------|----------------|
| 08/01/74-08/01/75 | FY76: TOTAL: \$20,855 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Johnson, E. S. | GSFC/Lancaster, E. R. | 21-Mathematics |

NSG 5019 **Gallaudet College** **1854**
Investigations of use of speech modulated white noise to differentiate hearers and feelers among listeners

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 08/26/74-06/30/76 | FY76: TOTAL: \$6,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Tobin, H. | GSFC/Chen, W. T. | 52-Clinical Med |
| | GSFC/Friedman, D. S. | |

NAS 1-14313 **George Washington University** **1855**
Second national symposium on Computerized Structural Analysis and Design

| Period | Obligations | |
|-------------------|------------------------------|---------------|
| 02/20/76-10/31/76 | FY76: \$9,500 TOTAL: \$9,500 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Toridis, T. G. | LARC/McComb, H. G., Jr. | 49-Engr, NEC |

NASW 2768 **George Washington University** **1856**
Operation of a scientific communication system for planetary quarantine

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 01/01/75-12/31/75 | FY76: TOTAL: \$48,538 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | HQ-SB/Hall, L. B. | 59-Life Sci, NEC |

NASW 2890 **George Washington University** **1857**
Operation of a scientific communication system for planetary quarantine

| Period | Obligations | |
|-------------------|--------------------------------|------------------|
| 01/01/76-12/31/76 | FY76: \$58,633 TOTAL: \$58,633 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | HQ-SB/Hall, L. B. | 75-Political Sci |

NGL 09-010-053 **George Washington University** **1858**
Research in space-related areas in engineering and applied science

| Period | Obligations | |
|-------------------|------------------------------------|---------------|
| 12/18/68-08/31/78 | FY76: \$200,000 TOTAL: \$1,250,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Anderson, A. F. | 49-Engr, NEC |

NGR 09-010-064 **George Washington University** **1859**
Research in acoustics at the NASA Langley Research Center

| Period | Obligations | |
|-------------------|------------------------------------|---------------|
| 01/29/70-01/31/77 | FY76: \$173,500 TOTAL: \$1,183,018 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Margolis, K. | 41-Aero Engr |

NGR 09-010-074 **George Washington University** **1860**
Programs of research in flight sciences

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 04/01/71-05/31/77 | FY76: \$101,000 TOTAL: \$841,600 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Mulac, R. W. | 41-Aero Engr |

NGR 09-010-078 **George Washington University** **1861**
Research programs in structures and dynamics

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 01/06/72-01/31/77 | FY76: \$204,200 TOTAL: \$751,800 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Anderson, R. A. | 41-Aero Engr |
| | LARC/Hammond, C. E. | |

NGR 09-010-085 **George Washington University** **1862**
Aircraft noise reduction research

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 02/21/73-08/31/76 | FY76: \$108,650 TOTAL: \$322,050 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Margolis, K. | 41-Aero Engr |

NGR 09-010-096 **George Washington University** **1863**
Research program in microwave remote sensing

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 09/01/73-08/31/76 | FY76: \$32,482 TOTAL: \$85,482 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Swift, C. T. | 45-Elec Engr |

NSG 1026 **George Washington University** **1864**
A graduate research program in environmental modeling

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 03/21/74-09/30/76 | FY76: \$167,200 TOTAL: \$292,200 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Callis, L. B., Jr. | 31-Atmos Sci |
| | LARC/Young, G. R. | |

NSG 1110 **George Washington University** **1865**
Antenna and wave propagation applied to avionics systems

| Period | Obligations | |
|-------------------|-------------------------------|---------------|
| 10/01/74-12/31/76 | FY76: \$8,900 TOTAL: \$40,400 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Bailey, M. C. | 45-Elec Engr |
| | LARC/Croswell, W. F. | |

NSG 1155 **George Washington University** **1866**
Studies related to materials flight sciences

| Period | Obligations | |
|-------------------|---------------------------------|-------------------|
| 03/03/75-09/02/77 | FY76: \$90,000 TOTAL: \$210,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Swann, R. T. | 47-Materials Engr |
| Esterling, D. M. | LARC/Stein, B. A. | |

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NSG 1161 **George Washington University** **1867**
Research in flight dynamics

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/75-10/31/76 | FY76: | TOTAL: \$35,470 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Suit, W. T. | 41-Aero Engr |
| | LARC/Queijo, M. J. | |

NSG 1170 **George Washington University** **1868**
Program verification for commercial aircraft applications

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 05/01/75-02/28/77 | FY76: \$20,000 | TOTAL: \$29,994 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Maurer, W. D. | LARC/Straeter, T. A. | 99-Multi-Discip |

NSG 1216 **George Washington University** **1869**
Research in atmospheric science

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 09/01/75-08/31/76 | FY76: | TOTAL: \$27,014 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Callis, L. B., Jr. | 31-Atmos Sci |
| | LARC/Young, G. R. | |

NSG 1228 **George Washington University** **1870**
Fracture of advanced composite materials

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 09/01/75-08/31/76 | FY76: \$30,968 | TOTAL: \$30,968 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Poe, C. C., Jr. | 47-Materials Engr |

NSG 1246 **George Washington University** **1871**
High Reynolds number transonic research in support of projected advanced experimental facilities

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$40,400 | TOTAL: \$40,400 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/McKinney, L. W. | 41-Aero Engr |
| | LARC/Howell, R. R. | |

NSG 1251 **George Washington University** **1872**
Severe storms research

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$34,976 | TOTAL: \$34,976 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Costen, R. C. | 31-Atmos Sci |
| Kaplan, M. L. | LARC/Callis, L. B., Jr. | |

NSG 1289 **George Washington University** **1873**
Research program in improved fracture toughness determination for aircraft structural materials

| Period | Obligations | |
|-------------------|-------------------------|-------------------|
| 03/01/76-02/28/77 | FY76: \$39,500 | TOTAL: \$39,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liebowitz, H. | LARC/Elber, W. | 47-Materials Engr |
| Eftis, J. | LARC/Newman, J. C., Jr. | |

NSG 7145 **George Washington University** **1874**
Analysis of the space shuttle decision

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 06/11/75-08/31/77 | FY76: | TOTAL: \$33,037 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Logsdon, J. M. | HQ-AD/Wright, M. D. | 75-Political Sci |

NSR 09-010-027 **George Washington University** **1875**
Scientific communication research in space biology

| Period | Obligations | |
|-------------------|-------------------------|--------------------|
| 05/24/66-09/30/75 | FY76: \$3,532 | TOTAL: \$2,344,577 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schiff, H. I. | LERC/Baker, C. E. | 59-Life Sci, NEC |
| Ridley, B. | HQ-SB/Brownstein, H. S. | |

NAS 8-30252 **Howard University** **1876**
Diffusion in liquid metal systems

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 12/01/73-01/10/75 | FY76: | TOTAL: \$10,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ukanwa, A. O. | MSFC/Schafer, C. F. | 13-Physics |
| | MSFC/Bannister, T. C. | |

NASW 2906 **Howard University** **1877**
A three day symposium on aeronautics and space

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/24/76-05/30/76 | FY76: \$19,480 | TOTAL: \$19,480 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | HQ-U/Monroe, R. | 99-Multi-Discip |

NCA 5-14 **Howard University** **1878**
Cooperative program in engineering

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/76-06/30/77 | FY76: \$23,500 | TOTAL: \$23,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cox, E. L. | GSFC/Mundy, J. R. | 49-Engr, NEC |

NGL 09-011-017 **Howard University** **1879**
Study of neurohumoral control systems operations in adjustment of ventricular performance

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/25/68-01/15/79 | FY76: \$80,000 | TOTAL: \$832,398 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hawthorne, E. W. | ARC/Sandler, H. | 53-Other Medical |

NGL 09-011-046 **Howard University** **1880**
Investigation of radiation detectors for environmental trace elements

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/25/72-07/31/77 | FY76: | TOTAL: \$33,131 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ferguson, G. A. | HQ-P/Pohly, J. G. | 39-Env Sci, NEC |

NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)

NGR 09-011-053 **Howard University** **1881**
 Three-dimensional motion and stability of rotating space
 station-cable-counter-weight configuration
Period *Obligations*
 05/09/73-05/15/75 FY76: TOTAL: \$37,814
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bainum, P. M. HQ-MT/Huff, V. N. 46-Mech Engr

NGR 09-011-055 **Howard University** **1882**
 Investigations of noninvasive ECG systems
Period *Obligations*
 09/01/74-03/31/76 FY76: TOTAL: \$18,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fischmann, E. J. GSFC/Chen, W. T. 52-Clinical Med
 Miller, W. GSFC/Friedman, D. S.
 Yagelovich, J.

NGR 09-011-057 **Howard University** **1883**
 Electron spectroscopy
Period *Obligations*
 04/01/74-07/31/77 FY76: \$900 TOTAL: \$25,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tsang, T. GSFC/Yin, L. I. 13-Physics

NGT 09-011-051 **Howard University** **1884**
 Training of undergraduate students in sciences and engineering
Period *Obligations*
 01/01/73-03/31/75 FY76: TOTAL: \$72,508
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Deloatch, E. M. HQ-P/Pohly, J. G. 59-Life Sci, NEC

NGT 09-011-058 **Howard University** **1885**
 Training of undergraduate students in sciences and engineering
Period *Obligations*
 06/01/74-05/31/77 FY76: \$14,000 TOTAL: \$42,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cox, E. L. HQ-P/Pohly, J. G. 49-Engr, NEC
 HQ-U/Jenkins, H. G.

NSG 1130 **Howard University** **1886**
 Weight minimization of a large area expandable space structure
 with respect to a minimum allowable natural frequency
Period *Obligations*
 12/09/74-01/15/77 FY76: \$34,150 TOTAL: \$60,150
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Broome, T. H. LARC/Kruszewski, E. T. 44-Civil Engr

NSG 1181 **Howard University** **1887**
 Dynamics of spin stabilized spacecraft with movable appendages
Period *Obligations*
 05/16/75-05/15/77 FY76: \$34,630 TOTAL: \$62,146
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bainum, P. M. LARC/Martz, C. W. 41-Aero Engr

NSG 5016 **Howard University** **1888**
 Investigations of MIMS applications
Period *Obligations*
 09/01/74-09/30/76 FY76: \$19,000 TOTAL: \$38,540
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shepard, J. GSFC/Alterescu, S. 53-Other Medical

NSG 5021 **Howard University** **1889**
 Oh and Nh emission studies of comet Kohoutek
Period *Obligations*
 11/01/74-08/31/75 FY76: TOTAL: \$7,688
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kumar, C. K. GSFC/Maran, S. P. 11-Astronomy

NSG 5071 **Howard University** **1890**
 Laser induced photoluminescence studies of primary photochemical
 production processes of cometary radicals
Period *Obligations*
 08/01/75-10/15/76 FY76: \$55,000 TOTAL: \$55,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Jackson, W. M. GSFC/Stief, L. J. 12-Chemistry

NSG 5081 **Howard University** **1891**
 Infant weighing scheme
Period *Obligations*
 10/13/75-10/12/76 FY76: \$38,940 TOTAL: \$38,940
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Deloatch, E. M. GSFC/Alterescu, S. 53-Other Medical
 GSFC/Friedman, D. S.

NSG 5104 **Howard University** **1892**
 Determination of bacteria concentration by luminescence assay
Period *Obligations*
 03/15/76-11/15/76 FY76: \$9,981 TOTAL: \$9,981
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Okrend, H. H. GSFC/Picciolo, G. L. 51-Biology
 GSFC/Chappelle, E. W.

NSG 9010 **Howard University** **1893**
 Theoretical evaluation of linear Kalman filtering techniques for
 advanced mission state determination
Period *Obligations*
 07/01/74-08/31/76 FY76: \$15,000 TOTAL: \$30,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Choudhury, A. K. JSC/Savely, R. T. 45-Elec Engr

NAS 5-22383 **Washington Technical Institute** **1894**
 Electronics fabrication studies
Period *Obligations*
 06/03/75-06/30/76 FY76: \$8,500 TOTAL: \$28,099
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brach, P. L. GSFC/Ehrmann, C. H. 45-Elec Engr
 Lumpkin, I.

**NASA'S UNIVERSITY PROGRAM
DISTRICT OF COLUMBIA (Continued)**

NCA 5-40 **Washington Technical Institute** **1895**
Study the evolution of solar active regions
Period *Obligations*
06/16/75-09/16/75 **FY76:** **TOTAL: \$4,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kasten, A. GSFC/Hobbs, R. W. 11-Astronomy

NGR 09-059-002 **Washington Technical Institute** **1896**
Electronics fabrication studies
Period *Obligations*
01/15/74-12/31/75 **FY76:** **TOTAL: \$42,240**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brach, P. GSFC/Ehrmann, C. H. 45-Elec Engr

FLORIDA

NGR 10-022-001 **Bethune - Cookman College** **1897**
A study of lagoonal and estuarine processes through the beneficial disposal of solid waste
Period *Obligations*
07/26/72-10/31/76 **FY76: \$27,658** **TOTAL: \$98,980**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Poonai, P. KSC/Hammond, T. M. 39-Env Sci, NEC
Marlins, J. C.

NGR 10-010-002 **Florida A&M University** **1898**
Development of methods for analysis of hydrocarbons in partially purified waste water
Period *Obligations*
60/17/30-01/31/76 **FY76:** **TOTAL: \$41,781**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cottrell, P. T. KSC/Schehl, T. A. 39-Env Sci, NEC

NSG 805 **Florida A&M University** **1899**
Studies on the morphological, biochemical, and growth characteristics of salmonella nad shigella in waterways surrounding Cape Kennedy
Period *Obligations*
04/01/75-04/01/76 **FY76:** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harrell, B. E. KSC/Malone, J. E. 59-Life Sci, NEC

NSG 901 **Florida A&M University** **1900**
Electron-impact excitation of molecular nitrogen
Period *Obligations*
09/12/74-09/11/76 **FY76: \$25,913** **TOTAL: \$49,131**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jones, H. W. JPL/Trajmar, S. 13-Physics
Weatherford, C. A.

NSG 2029 **Florida A&M University** **1901**
Study of influence of amines on diurnal toxicity of stimulants & depressants
Period *Obligations*
07/01/74-08/31/76 **FY76: \$34,340** **TOTAL: \$73,145**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, C. A. ARC/Winget, C. M. 59-Life Sci, NEC
ARC/Danellis, J. V.

NSG 2103 **Florida A&M University** **1902**
Microbial transformation of nucleosides
Period *Obligations*
10/01/75-09/30/76 **FY76: \$20,034** **TOTAL: \$20,034**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lamba, S. S. ARC/Winget, C. M. 59-Life Sci, NEC

NAS10-8399 **Florida Institute of Technology** **1903**
Hypergolic propellants liquid and vapor disposal study
Period *Obligations*
08/08/73-01/11/77 **FY76: \$138,916** **TOTAL: \$283,690**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bowman, T. E. KSC/Franks, H. H. 43-Chem Engr
Newman, R. W. KSC/Dobson, J. L.

NGR 10-015-008 **Florida Institute of Technology** **1904**
Study of lagoonal and estuarine ecological processes
Period *Obligations*
09/03/74-03/31/76 **FY76:** **TOTAL: \$233,224**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weber, H. P. KSC/Lee, W. H. 39-Env Sci, NEC

NSG 5038 **Florida Institute of Technology** **1905**
Correlation of the earth's rotation rate and the secular change of the geomagnetic fields
Period *Obligations*
12/01/74-08/31/75 **FY76:** **TOTAL: \$6,966**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jin, R. S. GSFC/Langel, R. A. 13-Physics

NAS 1-9693 **Florida State University** **1906**
Participation in the science planning for the Viking 1975 missions in the area of meteorology
Period *Obligations*
03/23/70-03/31/77 **FY76: \$102,909** **TOTAL: \$322,910**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hess, S. K. LARC/Williams, T. S., Jr. 32-Geological Sci
LARC/Glenney, W. R.

NAS 5-22578 **Florida State University** **1907**
Geobotanical interpretation of the geology and phosphate occurrences of North-Central Florida
Period *Obligations*
09/09/75-07/09/76 **FY76: \$4,886** **TOTAL: \$4,886**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Buie, B. F. GSFC/Schnetzler, C. C. 32-Geological Sci
Devore, G. W.

NASA'S UNIVERSITY PROGRAM **FLORIDA (Continued)**

NGR 10-004-041 **Florida State University** **1908**
Microbial activity in non-aqueous systems
Period *Obligations*
07/17/72-09/14/76 FY76: TOTAL: \$188,465
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Larock, P. A. HQ-SB/Young, R. S. 51-Biology

NGR 10-004-056 **Florida State University** **1909**
Infrared absorption from 0.8 to 1.5 microns of Nh₃, Ch₄ and CO₂
Period *Obligations*
03/25/69-01/31/77 FY76: \$24,600 TOTAL: \$235,565
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hunt, R. H. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NSG 1021 **Florida State University** **1910**
Large scale disturbances mechanism of jet noise generation
Period *Obligations*
06/01/74-06/30/76 FY76: TOTAL: \$29,023
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tam, C. K. LARC/Hardin, J. C. 13-Physics
Hunter, C.

NAS10-8934 **Florida Technological University** **1911**
Vascular aquatic plant research
Period *Obligations*
01/06/76-01/05/77 FY76: \$6,614 TOTAL: \$6,614
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Osborne, J. KSC/Burton, R. 39-Env Sci, NEC

NAS10-8986 **Florida Technological University** **1912**
Base-line studies for environmentally monitoring the effects of space transportation systems
Period *Obligations*
05/28/76-05/27/77 FY76: \$319,578 TOTAL: \$319,578
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vickers, D. H. KSC/Buchanan, P. 39-Env Sci, NEC
Stout, I. J. KSC/Lee, W. H.
Dsen, M. A.

NGR 10-019-004 **Florida Technological University** **1913**
Study of a diverse coastal ecosystem on the Atlantic coast of Florida
Period *Obligations*
04/11/72-04/23/76 FY76: TOTAL: \$226,008
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sweet, H. C. KSC/Lee, W. H. 39-Env Sci, NEC
Ehrhart, L. M.
Snelson, F. F.

NGR 10-019-009 **Florida Technological University** **1914**
Solid rocket exhaust effects on ecology and environment
Period *Obligations*
02/03/73-03/31/76 FY76: TOTAL: \$159,378
Prin. Invest. *NASA Tech. Officer* *CASE Category*
St John, R. KSC/Lee, W. H. 39-Env Sci, NEC
Mickus, J.

NSG 5110 **Florida Technological University** **1915**
Analysis of radio observations of cometary nebulae
Period *Obligations*
05/01/76-04/30/77 FY76: \$7,700 TOTAL: \$7,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Katzin, J. C. GSFC/Hobbs, R. W. 11-Astronomy
GSFC/Maran, S. P.

NAS 5-22908 **University of Florida** **1916**
Nimbus-G experiment team for solar back-scattered ultraviolet and total ozone mapping system
Period *Obligations*
12/19/75-12/18/78 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Green, A. E. GSFC/Heath, D. F. 49-Engr, NEC

NAS 8-20247 **University of Florida** **1917**
Study of age deterioration of gasket materials installed in simulated launch vehicle hardware
Period *Obligations*
06/28/65-06/30/79 FY76: TOTAL: \$29,408
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Patterson, E. P. MSFC/Schell, J. T. 12-Chemistry
MSFC/Wood, T. E.

NAS10-8774 **University of Florida** **1918**
Models to predict earth-air interface temperature regimes during freeze conditions
Period *Obligations*
12/06/74-12/05/75 FY76: TOTAL: \$79,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartholic, J. F. KSC/Toft, P. D. 39-Env Sci, NEC
Sutherland, R. A.
Hannah, H. E.

NAS10-8920 **University of Florida** **1919**
Models to predict earth-air interface temperature regimes during freeze conditions
Period *Obligations*
12/02/75-12/01/76 FY76: \$74,998 TOTAL: \$74,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartholic, J. F. KSC/Toft, P. D. 39-Env Sci, NEC

NCA 2-240501 **University of Florida** **1920**
Simulation of the colian modification of Martian craters
Period *Obligations*
12/02/74-06/15/75 FY76: TOTAL: \$14,929
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clarkson, M. H. ARC/Zill, L. P. 41-Aero Engr

NGL 10-005-008 **University of Florida** **1921**
Theoretical atmospheric physics
Period *Obligations*
06/04/64-04/30/78 FY76: \$50,000 TOTAL: \$558,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Green, A. S. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

**NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)**

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NGL 10-005-022 **University of Florida** **1922**
Gas solubilities and transport properties in fuel cell electrolytes
Period *Obligations*
02/14/66-12/31/76 FY76: TOTAL: \$278,211
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, R. D., Jr. LERC/Post, R. E. 43-Chem Engr

NGL 10-005-089 **University of Florida** **1923**
Experimental investigation of a uranium plasma
Period *Obligations*
01/30/68-12/31/78 FY76: \$94,000 TOTAL: \$773,795
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schneider, R. T. HQ-RR/Thom, K. 13-Physics
Carroll, E. E. LARC/Hohl, F.
Ohanian, M. J.

NGL 10-005-127 **University of Florida** **1924**
Experimental investigation of round turbulent jet exhausting into a subsonic cross flow
Period *Obligations*
12/03/69-10/31/78 FY76: \$27,597 TOTAL: \$200,282
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fearn, R. L. LARC/Margason, R. J. 41-Aero Engr
LARC/Weston, R. P.

NGR 10-005-057 **University of Florida** **1925**
Studies of electroencephalographic patterns
Period *Obligations*
05/23/68-03/31/77 FY76: \$85,000 TOTAL: \$504,470
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Webb, W. B. ARC/Anliker, J. E. 69-Psych, NEC
Agnew, H. W., Jr. ARC/Huff, E. M.

NGR 10-005-169 **University of Florida** **1926**
Lightning studies
Period *Obligations*
01/15/73-04/15/77 FY76: \$10,000 TOTAL: \$38,997
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Uman, M. A. KSC/Toft, P. D. 31-Atmos Sci
Chenette, E. R.

NGR 10-005-182 **University of Florida** **1927**
Fundamental studies on electrolyte matrix processing
Period *Obligations*
06/26/73-06/30/77 FY76: \$35,351 TOTAL: \$102,667
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, R. D., Jr. LERC/Sheibley, D. W. 43-Chem Engr

NSG 2120 **University of Florida** **1928**
Investigation on the flow about general fuselage shapes at high angles of attack
Period *Obligations*
09/15/75-09/14/78 FY76: \$62,234 TOTAL: \$62,234
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clarkson, M. H. ARC/Malcolm, G. N. 41-Aero Engr
ARC/Chapman, G. T.

NSG 3018 **University of Florida** **1929**
Silicon PN junction solar cells
Period *Obligations*
06/24/74-07/23/77 FY76: \$60,000 TOTAL: \$116,983
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lindholm, F. A. LERC/Godlewski, M. P. 45-Elec Engr
LERC/Brandhorst, H. W., Jr.

NSG 5061 **University of Florida** **1930**
Electromagnetic wave energy conversion research
Period *Obligations*
04/01/75-11/30/75 FY76: TOTAL: \$19,440
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bailey, R. L. GSFC/Peake, H. J. 45-Elec Engr
GSFC/Lyons, J. C.

NSG 5116 **University of Florida** **1931**
Investigation of the doubling of the MG-II 2759 resonance line
Period *Obligations*
06/01/76-05/31/77 FY76: \$3,770 TOTAL: \$3,770
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chen, K. W. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7143 **University of Florida** **1932**
Analysis of Jupiter data from radio astronomy experiment spacecraft
Period *Obligations*
06/01/75-09/30/76 FY76: \$21,079 TOTAL: \$21,079
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carr, T. D. HQ-SA/Rosendhal, J. D. 11-Astronomy

NSG 7236 **University of Florida** **1933**
Use of remote sensing in solving Florida's geological and coastal engineering problems
Period *Obligations*
07/01/76-06/30/79 FY76: \$200,000 TOTAL: \$200,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brooks, H. K. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NSG 8031 **University of Florida** **1934**
Space processing applications shuttle payload requirements specifications study
Period *Obligations*
09/26/75-03/25/76 FY76: \$4,500 TOTAL: \$4,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldberg, E. P. MSFC/Taylor, K. R. 19-Phys Sci, NEC

NAS 5-22417 **University of Miami** **1935**
Determination of potential solar power sites in Western Hemisphere
Period *Obligations*
06/05/75-09/05/77 FY76: \$60,000 TOTAL: \$95,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hiser, H. W. GSFC/Thekaekara, M. P. 19-Phys Sci, NEC

NASA'S UNIVERSITY PROGRAM
FLORIDA (Continued)

NAS 5-22963 **University of Miami** **1936**
Nimbus G coastal zone color scanner sensor experiment
Period *Obligations*
02/02/76-02/02/79 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gordon, H. R. GSFC/Hovis, W. A. 31-Atmos Sci

NAS10-8600 **University of Miami** **1937**
Laser application to measure verticle sea temperature and turbidity
Period *Obligations*
06/01/74-12/01/74 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hirschberg, J. G. KSC/Bland, R. A. 39-Env Sci, NEC
KSC/Toft, P. D.

NAS10-8740 **University of Miami** **1938**
Application of remote sensing for prediction and detection of thermal pollution
Period *Obligations*
10/15/74-12/31/75 FY76: TOTAL: \$110,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veziroglu, T. N. KSC/Bland, R. A. 39-Env Sci, NEC

NAS10-8795 **University of Miami** **1939**
Study of laser application to measure vertical sea temperature and turbidity
Period *Obligations*
03/01/75-02/27/76 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hirschberg, J. G. KSC/Bland, R. A. 39-Env Sci, NEC
Wouters, A. W. KSC/Toft, P. D.

NAS10-8926 **University of Miami** **1940**
Remote sensing for detection and prediction of thermal pollution
Period *Obligations*
01/06/76-01/05/77 FY76: \$119,993 TOTAL: \$119,993
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, S. S. KSC/Bland, R. A. 39-Env Sci, NEC
Veziroglu, T. N.
Ngupta, S. E.

NAS10-8954 **University of Miami** **1941**
Development and application of a laser system as a remote sensor to measure subsurface temperature and turbidity
Period *Obligations*
03/22/76-03/21/77 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hirschberg, J. G. KSC/Bland, R. A. 39-Env Sci, NEC
Wouters, A. W. KSC/Barnett, U. R.

NGR 10-007-008 **University of Miami** **1942**
Research in the Institute of Molecular Evolution in the School of Environmental and Planetary Sciences
Period *Obligations*
06/09/64-09/30/76 FY76: \$175,000 TOTAL: \$2,242,040
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, S. W. HQ-SB/Young, R. S. 12-Chemistry

NGR 10-007-097 **University of Miami** **1943**
Water immersion study
Period *Obligations*
06/08/72-08/31/76 FY76: TOTAL: \$95,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Epstein, M. JSC/Leach, C. S. 52-Clinical Med

NGR 10-007-118 **University of Miami** **1944**
Comparison of stress corrosion cracking behavior of high strength alloys in natural sea water and synthetic sea salt solutions
Period *Obligations*
11/26/73-01/01/77 FY76: \$30,400 TOTAL: \$73,150
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, H. L., Jr. LERC/Shannon, J. L., Jr. 47-Materials Engr
LERC/Brown, W. F., Jr.

NSG 1283 **University of Miami** **1945**
Effects of environmental variables on the crack initiation stages of the corrosion fatigue of high strength aluminum alloys
Period *Obligations*
03/01/76-02/28/77 FY76: \$29,700 TOTAL: \$29,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, H. L., Jr. LARC/Lisagor, W. B. 47-Materials Engr
LARC/Ransone, P. O.

NSG 7245 **University of Miami** **1946**
Excess helium in meteorites
Period *Obligations*
06/01/76-05/31/77 FY76: \$22,080 TOTAL: \$22,080
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fisher, D. E. HQ-SL/French, B. M. 32-Geological Sci
HQ-SL/Flinn, E. A.

S-55672A **University of Miami** **1947**
Study of optimum signal processing techniques
Period *Obligations*
03/29/76-03/15/77 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable GSFC/Shive, J. 45-Elec Engr

NAS 8-31172 **University of South Florida** **1948**
Investigation of electrical properties of conductive adhesives and film resistors
Period *Obligations*
02/07/75-03/06/77 FY76: \$19,966 TOTAL: \$39,837
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sergent, J. MSFC/Caruso, S. V. 45-Elec Engr
MSFC/Dehaye, R. F.

NASA'S UNIVERSITY PROGRAM **FLORIDA (Continued)**

NSG 1159 **University of South Florida** **1949**
Non-Gaussian classification procedures of pattern recognition
Period *Obligations*
06/01/75-09/30/77 FY76: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tsokos, C. P. LARC/Park, S. K. 21-Mathematics

NSG 3096 **University of South Florida** **1950**
Computerized power supply analysis: State equation generation and terminal models
Period *Obligations*
02/02/76-02/02/77 FY76: \$24,549 TOTAL: \$24,549
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garrett, S. J. LERC/Triner, J. E. 45-Elec Engr
Bowers, J. C. LERC/Kolecki, J. C.

NSG 7242 **University of South Florida** **1951**
Analysis of satellite observations of beta lyrae and other objects
Period *Obligations*
06/15/76-06/14/77 FY76: \$12,640 TOTAL: \$12,640
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, R. E. HQ-SA/Roman, N. G. 11-Astronomy
HQ-SA/Rosendhal, J. D.

GEORGIA

NSG 8019 **Atlanta University** **1952**
A study of the redox photo-chemistry of a number of iron complexes
Period *Obligations*
09/01/74-09/01/76 FY76: \$24,920 TOTAL: \$50,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reed, J. L. MSFC/Curry, J. E. 12-Chemistry
Johnson, J. MSFC/Kent, M. I.

NSG 2143 **Clark College** **1953**
Aerosol formation and the space shuttle program
Period *Obligations*
04/15/76-04/14/77 FY76: \$40,215 TOTAL: \$40,215
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, G. H. ARC/Reynolds, R. T. 31-Atmos Sci

NGL 11-001-009 **Emory University** **1954**
Study of cardiovascular adaptation during long-term weightlessness
Period *Obligations*
05/12/65-06/30/79 FY76: TOTAL: \$497,179
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Popovic, V. P. ARC/Holton, E. M. 51-Biology

NGR 11-001-012 **Emory University** **1955**
Effects of gravitational stimuli on sleep and vestibular function
Period *Obligations*
06/01/65-12/01/75 FY76: TOTAL: \$566,038
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perachio, A. A. ARC/Winter, D. L. 61-Biol Aspects

NGR 11-001-016 **Emory University** **1956**
Histopathological & histochemical study of subhuman primates
Period *Obligations*
10/01/63-02/28/77 FY76: \$64,350 TOTAL: \$770,162
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bourne, G. H. ARC/Sandler, H. 51-Biology

NGR 11-001-045 **Emory University** **1957**
Vestibular influence on sleep in non-human primates
Period *Obligations*
10/07/71-12/31/76 FY76: \$75,600 TOTAL: \$286,088
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Perachio, A. A. ARC/Daunton, N. G. 59-Life Sci, NEC

H-23602B **Georgia Institute of Technology** **1958**
Microprobe analysis of aluminum and oxygen on steel samples
Period *Obligations*
04/29/76-05/15/76 FY76: \$575 TOTAL: \$575
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, J. MSFC/Eudy, R. G. 47-Materials Engr

NAS 1-13422 **Georgia Institute of Technology** **1959**
Study of biological experiments for the Viking mission
Period *Obligations*
09/13/74-03/31/77 FY76: TOTAL: \$39,255
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hubbard, J. S. LARC/Williams, T. S., Jr. 51-Biology
LARC/Glenny, W. R.

NAS 1-14351 **Georgia Institute of Technology** **1960**
Benefit assessment of pollution monitoring satellites
Period *Obligations*
02/26/76-02/25/77 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zimmer, R. P. LARC/Lawrence, G. F. 31-Atmos Sci
Sassone, P. LARC/Rarer, J. L.
Haffer, S. C.

NAS 3-17827 **Georgia Institute of Technology** **1961**
Benefit-cost methodology study with use of wind generators application
Period *Obligations*
06/10/74-08/09/75 FY76: TOTAL: \$67,189
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zimmer, R. P. LERC/Hein, G. F. 49-Engr, NEC

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NAS 3-18901 Georgia Institute of Technology 1962
S-band omnidirectional antenna

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/24/74-12/23/74 | FY76: | TOTAL: \$75,331 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bassett, H. L. | LERC/Conroy, M. I. | 45-Elec Engr |

NAS 3-19700 Georgia Institute of Technology 1963
Cost benefits of space communications technology

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 05/09/75-04/30/76 | FY76: | TOTAL: \$91,038 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Camp, A. A. | LERC/Stevenson, S. M. | 49-Engr, NEC |

NAS 3-20110 Georgia Institute of Technology 1964
Millimeter wave satellite concepts

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/76-03/01/77 | FY76: \$83,793 | TOTAL: \$83,793 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hilson, N. | LERC/Stevens, G. | 45-Elec Engr |

NAS 5-20956 Georgia Institute of Technology 1965
Research on instrumentation for tornado electromagnetic emissions detection

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/07/75-02/18/77 | FY76: \$43,433 | TOTAL: \$107,277 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Robertson, D. W. | GSFC/Levine, D. M. | 31-Atmos Sci |

NAS 5-22344 Georgia Institute of Technology 1966
Applications of near-field measurements for NASA requirements

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/11/75-02/11/76 | FY76: | TOTAL: \$43,995 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ryan, C. E. | GSFC/O'Donnell, H. | 45-Elec Engr |

NAS 5-22422 Georgia Institute of Technology 1967
Study of electrically small antennas for wildlife monitoring

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/12/75-06/12/76 | FY76: | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bassett, H. L. | GSFC/Dod, L. R. | 45-Elec Engr |
| Jenkins, H. H. | | |

NAS 5-23603 Georgia Institute of Technology 1968
Dual channel 180 GHz radiometer for Convair flights

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/19/76-04/18/77 | FY76: \$35,000 | TOTAL: \$35,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dees, J. W. | GSFC/King, J. L. | 45-Elec Engr |
| Schuchardt, J. M. | GSFC/Shiue, J. C. | |

NAS 8-30246 Georgia Institute of Technology 1969
Multiple hologram recording in lithium niobate

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/73-01/01/76 | FY76: | TOTAL: \$28,976 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Callen, W. R. | MSFC/Kerr, J. H. | 13-Physics |
| Gaylord, I. K. | MSFC/Pitts, E. H. | |

NAS 8-30534 Georgia Institute of Technology 1970
Analysis of six band multispectral images and fabrication of a Fourier transform detector

| Period | Obligations | |
|--------------------|--------------------|-----------------|
| 12/21/73-06/21/75 | FY76: | TOTAL: \$59,881 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Shackelford, R. G. | MSFC/Kerr, J. H. | 99-Multi-Discip |

NAS 8-30617 Georgia Institute of Technology 1971
Probability analysis of crank initiation

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 03/22/74-09/30/76 | FY76: | TOTAL: \$19,342 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hanagud, S. V. | MSFC/Bianca, C. J. | 19-Phys Sci, NEC |
| | MSFC/Key, J. E. | |

NAS 8-30653 Georgia Institute of Technology 1972
USGS/NASA land-use classification system

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/02/74-12/31/76 | FY76: \$20,000 | TOTAL: \$49,980 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dees, J. W. | MSFC/Paludan, C. T. | 39-Env Sci, NEC |
| Faust, N. L. | MSFC/Huffman, J. D. | |
| Spann, G. W. | | |

NAS 8-30657 Georgia Institute of Technology 1973
Neutral thermodynamic atmospheric model research study

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/22/74-10/31/76 | FY76: \$25,000 | TOTAL: \$81,637 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Justus, C. G. | MSFC/Smith, O. E. | 49-Engr, NEC |
| | MSFC/Brown, S. C. | |

NAS 8-30919 Georgia Institute of Technology 1974
Time delay profiles for teleoperator

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/06/74-05/21/75 | FY76: | TOTAL: \$39,835 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Walsh, J. R. | MSFC/Huggins, C. T. | 21-Mathematics |

NAS 8-31193 Georgia Institute of Technology 1975
A laser scanner for 35 mm film

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/25/75-10/24/76 | FY76: \$8,978 | TOTAL: \$58,945 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Callen, W. R. | MSFC/Kerr, J. H. | 13-Physics |
| | MSFC/Smith, H. L. | |

NASA'S UNIVERSITY PROGRAM **GEORGIA (Continued)**

NAS 8-31344 Georgia Institute of Technology 1976
Define conceptual design of an on-board optical processor with components

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/10/75-10/09/76 | FY76: \$39,909 | TOTAL: \$99,708 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Walsh, J. R. | MSFC/Smith, H. | 13-Physics |

NAS 8-31850 Georgia Institute of Technology 1977
Computer processing of peach tree decline data

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 02/13/76-10/12/76 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Faust, N. L. | MSFC/Downs, S. W., Jr. | 39-Env Sci, NEC |
| | MSFC/Paludan, C. T. | |

NAS 8-31990 Georgia Institute of Technology 1978
Digital analysis of LANDSAT data

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 06/25/76-12/27/76 | FY76: \$18,900 | TOTAL: \$18,900 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Faust, C. E. | MSFC/Downs, S. W., Jr. | 32-Geological Sci |
| | MSFC/Bensko, J. | |

NAS10-8375 Georgia Institute of Technology 1979
Study of computer model development for electrical power system

| Period | Obligations | |
|--------------------|--------------------|-----------------|
| 06/26/73-12/24/74 | FY76: | TOTAL: \$99,246 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Webb, R. P. | KSC/Wright, M. I. | 45-Elec Engr |
| Hayes, T. P. | | |
| Meliopoulos, A. P. | | |

NGL 11-002-004 Georgia Institute of Technology 1980
Theoretical and experimental research program in geophysics with emphasis on upper atmosphere chemical release studies

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 09/27/62-05/31/78 | FY76: \$35,000 | TOTAL: \$745,075 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Edwards, H. D. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Hipsher, H. F. | |

NGL 11-002-096 Georgia Institute of Technology 1981
Research on stability of large shells

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 04/04/69-06/30/76 | FY76: | TOTAL: \$468,473 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Horton, W. H. | LARC/Peterson, J. P. | 41-Aero Engr |

NGR 11-002-133 Georgia Institute of Technology 1982
Investigations of lubricant rheology as applied to elastohydrodynamic lubrication

| Period | Obligations | |
|-------------------|------------------------|------------------|
| 03/05/71-04/04/76 | FY76: | TOTAL: \$164,383 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winer, W. O. | LERC/Jones, W. R., Jr. | 46-Mech Engr |
| Sanborn, D. M. | | |

NGR 11-002-169 Georgia Institute of Technology 1983
Reliability-based fatigue design and maintenance procedures: Fatigue theories

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 02/09/73-06/30/76 | FY76: | TOTAL: \$44,090 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hanagud, S. V. | LARC/Leybold, H. A. | 21-Mathematics |
| | LARC/Davidson, J. R. | |

NGR 11-002-177 Georgia Institute of Technology 1984
Study of effects of injector geometry on fuel air mixing and combustion 1973

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/73-01/31/77 | FY76: | TOTAL: \$48,898 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bangert, L. H. | LARC/Eggers, J. M. | 41-Aero Engr |

NGR 11-002-179 Georgia Institute of Technology 1985
Determination of effects of nozzle nonlinearities upon nonlinear stability of liquid

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/02/73-11/01/75 | FY76: | TOTAL: \$49,570 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zinn, B. T. | LERC/Priem, R. J. | 42-Astro Engr |

NSG 1047 Georgia Institute of Technology 1986
Propagation of aircraft noise

| Period | Obligations | |
|--------------------|--------------------|-----------------|
| 05/01/74-05/31/76 | FY76: | TOTAL: \$53,295 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hadden, W. J., Jr. | LARC/Posey, J. W. | 13-Physics |
| Pierce, A. D. | LARC/Clark, L. R. | |

NSG 1257 Georgia Institute of Technology 1987
Flow field measurements in and around a jet issuing from a wing in crossflow

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$35,581 | TOTAL: \$35,581 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McMahon, H. M. | LARC/Weston, R. P. | 41-Aero Engr |

NSG 1288 Georgia Institute of Technology 1988
Analysis of the gas core actinide transmutation reactor

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 03/01/76-02/28/77 | FY76: \$56,639 | TOTAL: \$56,639 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Clement, J. D. | LARC/Hohl, F. | 19-Phys Sci, NEC |
| Rust, J. H. | | |

NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)

NGT 11-008-004 **Morehouse College** **2003**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-05/31/77 FY76: \$7,000 TOTAL: \$21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gayles, J. N. HQ-P/Pohly, J. G. 99-Multi-Discip
HQ-U/Jenkins, H. G.

NAS 8-30619 **North Georgia College** **2009**
Correlation studies of remote sensing and fine beetle infestation
Period *Obligations*
04/09/74-03/31/77 FY76: TOTAL: \$19,788
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Biesbrock, J. A. MSFC/Downs, S. W., Jr. 51-Biology
MSFC/Paludan, C. T.

NSG 8014 **Morehouse College** **2004**
A research program in magnetogas dynamics
Period *Obligations*
06/03/74-05/31/76 FY76: TOTAL: \$15,906
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spight, C. MSFC/Shriver, E. L. 13-Physics
MSFC/Kent, M. I.

NSG 8002 **Paine College** **2010**
Study of materials for space processing
Period *Obligations*
01/14/74-05/31/76 FY76: TOTAL: \$43,654
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owais, M. MSFC/Bannister, T. C. 13-Physics
MSFC/Kent, M. I.

NSG 8020 **Morehouse College** **2005**
A study for a heavy atom tracer method for the measurement of turbulence in plasmas
Period *Obligations*
08/01/74-08/31/76 FY76: \$24,199 TOTAL: \$61,222
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turner, J. M. MSFC/Stone, N. H. 13-Physics
MSFC/Kent, M. I.

NSG 803 **Savannah State College** **2011**
Toxic elements and organic degradation products in aquatic bodies and sediments around KSC
Period *Obligations*
09/23/74-09/22/76 FY76: \$25,484 TOTAL: \$56,044
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ghuman, G. S. KSC/Perkins, E. E. 39-Env Sci, NEC
Menon, M. P.
Obi Emeh, C.

NSG 8030 **Morehouse College** **2006**
Theoretical isotope effects to determine molecular structures: Thermodynamics comparisons inside and outside earth's atmosphere
Period *Obligations*
10/15/75-10/14/76 FY76: \$38,948 TOTAL: \$38,948
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frazier, D. O. MSFC/Clemons, J. M. 12-Chemistry
MSFC/Kent, M. I.

NGT 11-013-001 **Spelman College** **2012**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-05/31/77 FY76: \$7,000 TOTAL: \$21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McBay, S. M. HQ-P/Pohly, J. G. 99-Multi-Discip
HQ-U/Jenkins, H. G.

NSG 8039 **Morehouse College** **2007**
Analysis of pulsed magnetogasdynamic direct energy converter configurations
Period *Obligations*
06/01/76-05/31/77 FY76: \$13,033 TOTAL: \$13,033
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spight, C. MSFC/Williams, J. R. 13-Physics
MSFC/Kent, M. I.

NAS 8-31565 **University of Georgia** **2013**
Study to design variable orientation solar concentrators for space applications
Period *Obligations*
06/16/75-01/15/76 FY76: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burkhard, D. G. MSFC/Clingman, J. H. 13-Physics
MSFC/Whitacre, W. E.

NSG 8027 **Morris Brown College** **2008**
Increasing adhesion of paracyclophane polymers to epoxy glass laminate surfaces
Period *Obligations*
06/01/75-09/01/76 FY76: TOTAL: \$22,593
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weaver, F. MSFC/Patterson, W. J. 12-Chemistry
MSFC/Kent, M. I.

NASW 2658 **University of Georgia** **2014**
Computer Software Management Information Center
Period *Obligations*
07/01/74-06/30/75 FY76: TOTAL: \$210,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable HQ-KT/Harrison, J. O. 99-Multi-Discip

**NASA'S UNIVERSITY PROGRAM
GEORGIA (Continued)**

NASW 2820 **University of Georgia** **2015**
Operation of the Computer Software Management Information Center

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/75-06/30/76 | FY76: \$170,000 | TOTAL: \$170,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Carmon, J. L. | HQ-KT/Harrison, J. O. | 99-Multi-Discip |
| Park, M. K. | | |
| McRae, W. B. | | |

NASW 2742 **University of Hawaii** **2021**
Construction and installation of a 3-meter aperture infrared telescope facility

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/20/74-12/31/75 | FY76: \$22,200 | TOTAL: \$557,200 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jefferies, J. T. | HQ-BX/Weir, J. F. | 11-Astronomy |
| | HQ-SL/Brunk, W. E. | |

NGR 11-003-037 **University of Georgia** **2016**
Interpretation of stratigraphy and geologic mapping of Mars from Mariner/Mars 1971 television pictures

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/24/72-04/14/77 | FY76: | TOTAL: \$66,300 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Howard, H. T. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| Woodruff, J. F. | | |

NASW 2801 **University of Hawaii** **2022**
Construction of the three meter infrared telescope facility at Mauna Kea, Hawaii

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/01/75-10/31/77 | FY76: \$6,020,000 | TOTAL: \$6,020,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jefferies, J. T. | HQ-BX/Weir, J. F. | 11-Astronomy |
| | HQ-SL/Brunk, W. E. | |

NGF 12-001-102 **University of Hawaii** **2023**
Acquisition of scientific research facilities

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/12/72-06/30/74 | FY76: | TOTAL: \$142,800 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jefferies, J. T. | HQ-SM/Strickland, A. T. | 11-Astronomy |

HAWAII

NAS 2-8590 **University of Hawaii** **2017**
Research in packet broadcasting

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/74-09/30/76 | FY76: \$188,000 | TOTAL: \$588,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kuo, F. F. | ARC/Smith, M. C., Jr. | 99-Multi-Discip |
| Abramson, N. | | |

NGL 12-001-011 **University of Hawaii** **2024**
Research in coronal and chromospheric physics

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/16/64-10/31/76 | FY76: \$195,000 | TOTAL: \$3,419,234 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jefferies, J. T. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NAS 2-8687 **University of Hawaii** **2018**
Study on metabolism and energetics in hypo-gravity

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/74-03/31/76 | FY76: \$17,500 | TOTAL: \$52,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Siegel, S. M. | ARC/Taketa, S. T. | 51-Biology |

NGL 12-001-042 **University of Hawaii** **2025**
Performance and capabilities of terrestrial organisms in extreme and unusually gaseous and liquid environments

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/14/67-06/30/77 | FY76: | TOTAL: \$451,378 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Siegel, S. M. | HQ-SB/Young, R. S. | 51-Biology |

NAS 2-9175 **University of Hawaii** **2019**
Communications processor design and implementation

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/29/76-06/07/76 | FY76: \$45,080 | TOTAL: \$45,080 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lichtenberger, W. W. | ARC/Smith, M. C., Jr. | 45-Elec Engr |

NGL 12-001-057 **University of Hawaii** **2026**
Research in planetary studies

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/21/68-06/30/78 | FY76: \$406,900 | TOTAL: \$2,605,372 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jefferies, J. T. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NASW 2326 **University of Hawaii** **2020**
Design development and fabrication of research equipment

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/22/72-06/30/76 | FY76: | TOTAL: \$360,102 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jefferies, J. T. | HQ-SL/Strickland, A. T. | 11-Astronomy |

NGR 12-001-075 **University of Hawaii** **2027**
Research in solar ultraviolet spectroscopy

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 12/09/69-09/30/76 | FY76: \$200,000 | TOTAL: \$1,650,421 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jeffries, J. T. | GSFC/Bissell, E. E., Jr. | 11-Astronomy |
| McAllister, H. C. | HQ-ST/Timothy, A. F. | |

NASA'S UNIVERSITY PROGRAM HAWAII (Continued)

NGR 12-001-109 **University of Hawaii** **2028**
N-heterocyclic compounds role in chemical evolution distribution
in meteorites ancient sediments and as products of spark discharge
reactions

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 06/26/72-05/14/77 | FY76: \$69,212 TOTAL: \$154,839 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Folsome, C. E. | HQ-SB/Young, R. S. 12-Chemistry |

NGR 12-001-127 **University of Hawaii** **2029**
Operation of the Haleakala lunar ranging observatory

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 06/01/73-06/30/76 | FY76: \$370,700 TOTAL: \$1,067,900 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Jefferies, J. T. | HQ-SL/Strickland, A. T. |
| Carter, W. E. | 32-Geological Sci |

NSG 5027 **University of Hawaii** **2030**
A search for boron in ap stars

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 10/14/74-12/31/75 | FY76: TOTAL: \$11,507 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Boesgaard, A. M. | GSFC/Kupperian, J. E. 11-Astronomy |

NSG 5096 **University of Hawaii** **2031**
Abundance of boron in normal b and a type stars

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 02/01/76-01/31/77 | FY76: \$14,800 TOTAL: \$14,800 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Boesgaard, A. M. | GSFC/Kupperian, J. E. 11-Astronomy |

NSG 7179 **University of Hawaii** **2032**
Crustal deformation observations

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 10/20/75-01/31/77 | FY76: \$16,012 TOTAL: \$16,012 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Berg, E. | HQ-SL/Strickland, A. T. |
| Sutton, G. H. | 19-Phys Sci, NEC |

NSR 12-001-019 **University of Hawaii** **2033**
Design, development, fabrication & installation of a 84 inch
telescope for lunar planetary & stellar observations

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 06/30/65-06/30/75 | FY76: TOTAL: \$3,024,796 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Jefferies, J. T. | HQ-SL/Brunk, W. E. 11-Astronomy |
| | HQ-SL/Fellows, R. F. |

ILLINOIS

NSG 3030 **Chicago State University** **2034**
The restoration of obliterated serial numbers by ultrasonically
cavitated water

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 07/01/74-08/31/77 | FY76: \$30,860 TOTAL: \$56,848 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Treptow, R. S. | LERC/Young, S. G. 99-Multi-Discip |

NSG 1120 **Illinois Institute of Technology** **2035**
Streamwise vortices in turbulent shear flows

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 11/08/74-07/31/76 | FY76: TOTAL: \$15,003 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Nagib, H. M. | LARC/Beckwith, I. E. 41-Aero Engr |
| Morkovin, M. V. | LARC/Stainback, P. C. |

NSG 1266 **Illinois Institute of Technology** **2036**
Automated sizing of aerospace structures under multiple
constraints

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 12/01/75-11/31/76 | FY76: \$35,900 TOTAL: \$35,900 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Haftka, R. T. | LARC/Starnes, J. H., Jr. 41-Aero Engr |

NSG 7039 **Illinois Institute of Technology** **2037**
Review of coaxial flows with application to gas core nuclear
reactors

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 06/01/74-06/30/76 | FY76: TOTAL: \$30,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Weinstein, H. | HQ-RR/Thom, K. 13-Physics |
| | LARC/Hohl, F. |

NAS 9-12280 **Northwestern University** **2038**
Star study

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 11/23/71-06/30/76 | FY76: TOTAL: \$45,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Telford, J. W. | JSC/Henize, K. G. 11-Astronomy |

NGL 14-007-016 **Northwestern University** **2039**
Optical study

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 02/05/65-11/30/74 | FY76: TOTAL: \$705,863 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Hynek, J. A. | HQ-SM/Bryson, R. P. 32-Geological Sci |

NGL 14-007-041 **Northwestern University** **2040**
A study of celestial objects of high angular momenta

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 02/18/66-04/30/77 | FY76: \$28,000 TOTAL: \$245,251 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Huang, S. S. | HQ-SA/Rosendhal, J. D. 11-Astronomy |
| | HQ-SA/Roman, N. G. |

NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

NGL 14-007-058 **Northwestern University** **2041**
 Research program in administration
Period *Obligations*
 06/04/68-06/30/75 FY76: TOTAL: \$425,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Radnor, M. HQ-P/Morris, J. D. 79-Soc Sci, NEC

NGL 14-007-081 **Northwestern University** **2042**
 Potential and charge distribution near a metallic interface
Period *Obligations*
 01/21/69-12/31/75 FY76: TOTAL: \$150,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Waber, J. T. LERC/Lad, R. A. 13-Physics
 LERC/Bambakidis, G.

NGR 14-007-084 **Northwestern University** **2043**
 Effects of surface irregularities and friction on elastohydrodynamic lubrication
Period *Obligations*
 10/20/69-03/31/76 FY76: TOTAL: \$132,922
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cheng, H. LERC/Zaretsky, E. V. 46-Mech Engr

NGR 14-007-122 **Northwestern University** **2044**
 Time variations of UV emission features of be stars
Period *Obligations*
 08/01/72-01/31/75 FY76: TOTAL: \$14,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bahng, J. D. HQ-SA/Roman, N. G. 11-Astronomy

NGR 14-007-131 **Northwestern University** **2045**
 Study of electronic factors in fracture of metals
Period *Obligations*
 07/30/73-04/01/77 FY76: TOTAL: \$75,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Waber, J. T. LERC/Behrendt, D. R. 13-Physics

NGR 14-007-136 **Northwestern University** **2046**
 Study of NASA and its laboratories in a changing environment
Period *Obligations*
 11/01/73-09/15/76 FY76: \$10,000 TOTAL: \$34,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Radnor, M. HQ-Q/Keller, S. W. 99-Multi-Discip

NSG 2149 **Northwestern University** **2047**
 Technological and economic factors affecting the retirement dates of commercial jet aircraft
Period *Obligations*
 04/01/76-09/30/76 FY76: \$14,992 TOTAL: \$14,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Spencer, F. A. ARC/Williams, L. J. 41-Aero Engr
 Swanson, J. A. ARC/Waters, M. H.

NSG 3039 **Northwestern University** **2048**
 Investigation of interaction of turbine blade tips and labyrinth seals with housings of jet engines and gas turbines
Period *Obligations*
 09/16/74-08/31/76 FY76: \$33,999 TOTAL: \$68,936
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burton, R. A. LERC/Ludwig, L. P. 47-Materials Engr

NSG 3042 **Northwestern University** **2049**
 Influence of high traction fluids on elastohydrodynamic traction
Period *Obligations*
 01/15/75-09/14/77 FY76: TOTAL: \$4,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cheng, H. S. LERC/Zaretsky, E. V. 46-Mech Engr

NGR 14-008-026 **Southern Illinois University - Carbondale** **2050**
 Characterization of developmental physiology of previously unstudied life form, obligately, halophilic blue-green algae, aphanothece halothylica
Period *Obligations*
 05/08/73-05/31/77 FY76: TOTAL: \$111,202
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Yopp, J. H. HQ-SB/Young, R. S. 51-Biology

NAS 2-6551 **University of Chicago** **2051**
 Pioneer F/G charged particle experiment data analysis
Period *Obligations*
 08/09/71-06/30/76 FY76: \$224,157 TOTAL: \$892,640
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. ARC/Hall, C. F. 11-Astronomy
 ARC/Porter, D. L.

NAS 5-11067 **University of Chicago** **2052**
 IMP-H&J solar flare and isotope experiment
Period *Obligations*
 06/11/68-11/30/76 FY76: \$130,040 TOTAL: \$1,650,928
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simpson, J. A. GSFC/Davis, M. A. 13-Physics

NAS 5-20674 **University of Chicago** **2053**
 Quasi ray electrons experiment for ISEE-C
Period *Obligations*
 10/24/74-07/31/80 FY76: \$417,000 TOTAL: \$506,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meyer, P. GSFC/Gallagher, W. F. 13-Physics

NAS 5-20967 **University of Chicago** **2054**
 Study for adaptation of transition radiation experiment to spacelab shuttle missions
Period *Obligations*
 02/19/75-06/30/76 FY76: \$35,000 TOTAL: \$114,688
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meyer, P. GSFC/White, A. F., Jr. 11-Astronomy
 Muller, D.
 Lampert, J.

NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

NGL 14-001-001 **University of Chicago** **2055**
Investigation of effects of solar wind in interplanetary space
Period *Obligations*
08/01/60-07/31/78 FY76: \$70,000 TOTAL: \$972,372
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, E. N. HQ-SA/Opp, A. G. 11-Astronomy

NGL 14-001-005 **University of Chicago** **2056**
High altitude balloon investigations on composition, energy spectrum & intensity of primary cosmic radiation at high & intermediate geomagnetic latitudes
Period *Obligations*
05/01/61-10/31/78 FY76: \$365,000 TOTAL: \$4,712,258
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, P. HQ-SA/Pellerin, C. 11-Astronomy
HQ-SA/Opp, A. G.

NGL 14-001-006 **University of Chicago** **2057**
Experimental and theoretical studies of energetic particles and electrodynamic processes in interplanetary space and in vicinity of planets
Period *Obligations*
08/01/61-07/31/77 FY76: \$479,160 TOTAL: \$5,076,556
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

NGL 14-001-010 **University of Chicago** **2058**
Research and investigation of origin, age and composition of meteorites
Period *Obligations*
03/11/63-03/31/79 FY76: \$168,900 TOTAL: \$1,317,403
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. HQ-SL/French, B. M. 32-Geological Sci
Lewis, R. S. HQ-SL/Flinn, E. A.

NGL 14-001-167 **University of Chicago** **2059**
Lunar sample analysis
Period *Obligations*
03/29/72-01/31/79 FY76: \$223,000 TOTAL: \$1,181,830
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anders, E. JSC/Harris, J. W. 13-Physics

NGL 14-001-169 **University of Chicago** **2060**
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/79 FY76: \$161,400 TOTAL: \$531,230
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clayton, R. N. JSC/Harris, J. W. 12-Chemistry

NGL 14-001-171 **University of Chicago** **2061**
Lunar sample analysis
Period *Obligations*
01/19/71-01/31/79 FY76: \$111,080 TOTAL: \$443,080
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, J. V. JSC/Harris, J. W. 13-Physics

NGL 14-001-258 **University of Chicago** **2062**
Advanced technical developments in support of scientific experiments in space
Period *Obligations*
06/15/73-06/30/77 FY76: \$200,000 TOTAL: \$800,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simpson, J. A. HQ-P/Carter, C. H. 99-Multi-Discip

NGR 14-001-008 **University of Chicago** **2063**
Meteorological interpretation of satellite radiation data
Period *Obligations*
09/01/70-10/31/76 FY76: \$278,000 TOTAL: \$1,209,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fujita, T. T. GSFC/Shenk, W. E. 31-Atmos Sci

NGR 14-001-135 **University of Chicago** **2064**
Feasibility of the alpha scattering technique for Martian surface analysis
Period *Obligations*
02/25/69-06/30/76 FY76: \$75,000 TOTAL: \$554,852
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turkevich, A. L. HQ-SL/Dwornik, S. E. 32-Geological Sci

NGR 14-001-147 **University of Chicago** **2065**
Interferometric high-resolution spectroscopy of optical interstellar lines
Period *Obligations*
03/18/70-12/31/76 FY76: \$25,684 TOTAL: \$172,458
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hobbs, L. M. HQ-SA/Rosendhal, J. D. 11-Astronomy
HQ-SA/Roman, N. G.

NGR 14-001-164 **University of Chicago** **2066**
Spectral measurement of the X-ray emission from nonflare solar active region
Period *Obligations*
05/19/70-12/31/75 FY76: TOTAL: \$651,065
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blake, R. L. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 14-001-194 **University of Chicago** **2067**
Quantitative spectroscopy of planetary atmospheres
Period *Obligations*
07/20/71-04/14/79 FY76: TOTAL: \$156,037
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kaplan, L. D. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NGR 14-001-211 **University of Chicago** **2068**
Far infrared photometry of H-11 regions and planets using the NASA 30 cm flying infrared telescope
Period *Obligations*
02/14/72-10/31/76 FY76: \$43,000 TOTAL: \$219,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harper, D. A., Jr. ARC/Cameron, R. M. 11-Astronomy
ARC/Mason, R. H.

NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

| | |
|---|--|
| NGR 14-001-225 University of Chicago 2069 Physiology of the vestibular system of the squirrel monkey <i>Period</i> <i>Obligations</i> 05/12/67-08/31/76 FY76: \$60,000 TOTAL: \$277,893 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Goldberg, J. M. ARC/Daunton, N. G. 51-Biology Fernandez, C. ARC/Mehler, W. R. | NGL 14-005-140 University of Illinois - Urbana 2076 Research on fluid dynamic and heat transfer problems of modern air breathing propulsive systems <i>Period</i> <i>Obligations</i> 05/23/69-05/31/79 FY76: \$65,000 TOTAL: \$257,661 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Chow, W. L. LERC/Bober, L. J. 41-Aero Engr |
| NGR 14-001-227 University of Chicago 2070 Photometry of galactic and extragalactic far infrared sources using the 91.5 cm airborne infrared telescope <i>Period</i> <i>Obligations</i> 02/27/73-03/31/77 FY76: \$62,000 TOTAL: \$286,174 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Harper, D. A., Jr. ARC/Gillespie, C. M., Jr. 11-Astronomy ARC/Cameron, R. M. | NGR 14-005-144 University of Illinois - Urbana 2077 Determination of multiple element airfoil geometries for maximizing lift coefficient <i>Period</i> <i>Obligations</i> 01/30/70-11/30/76 FY76: TOTAL: \$209,699 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Ormsbee, A. I. LARC/Morgan, H. L., Jr. 41-Aero Engr |
| NGR 14-001-249 University of Chicago 2071 Physical properties of solar nebula as deduced from chondrites <i>Period</i> <i>Obligations</i> 05/14/73-03/31/79 FY76: \$216,771 TOTAL: \$355,267 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Grossman, L. HQ-SL/French, B. M. 32-Geological Sci Ganapathy, R. HQ-SL/Flinn, E. A. | NGR 14-005-149 University of Illinois - Urbana 2078 Study of local pressure field in turbulent shear flow and its relation to aerodynamic noise generation <i>Period</i> <i>Obligations</i> 02/10/70-06/30/76 FY76: TOTAL: \$195,040 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Jones, B. G. LERC/Karchmer, A. M. 41-Aero Engr LERC/Dorsch, R. G. |
| NSG 2057 University of Chicago 2072 Study of sensitive detection system for far infrared astronomy <i>Period</i> <i>Obligations</i> 12/01/74-10/31/76 FY76: \$35,000 TOTAL: \$60,000 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Hildebrand, R. H. ARC/Cameron, R. M. 11-Astronomy Harper, D. A. ARC/Gillespie, C. M., Jr. Stienling, R. | NGR 14-005-176 University of Illinois - Urbana 2079 Investigation of the atmosphere of Jupiter by studying the ammonia feature at a wavelength of 1.26 cm <i>Period</i> <i>Obligations</i> 05/22/72-07/31/76 FY76: TOTAL: \$28,513 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Dickel, J. R. HQ-SL/Brunk, W. E. 11-Astronomy HQ-SL/Fellows, R. F. |
| NSG 5068 University of Chicago 2073 High resolution observations of the diffuse lyman alpha sky background <i>Period</i> <i>Obligations</i> 07/01/75-06/30/77 FY76: TOTAL: \$8,527 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Parker, E. N. GSFC/Kupperian, J. E. 11-Astronomy | NGR 14-005-181 University of Illinois - Urbana 2080 Rocket studies of the lower ionosphere <i>Period</i> <i>Obligations</i> 08/01/71-07/31/76 FY76: \$450,000 TOTAL: \$2,124,817 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Bowhill, S. A. WFC/Ballance, C. W., Jr. 19-Phys Sci, NEC WFC/Gray, J. W. |
| NSG 7212 University of Chicago 2074 Nuclear astrophysics effects in meteoritic and lunar material <i>Period</i> <i>Obligations</i> 03/01/76-02/28/77 FY76: \$31,563 TOTAL: \$31,563 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Schramm, D. N. HQ-SL/Williams, R. J. 32-Geological Sci HQ-SL/Flinn, E. A. | NGR 14-005-193 University of Illinois - Urbana 2081 High intensity combustion and nitrous oxide formation in a turbine engine combustor <i>Period</i> <i>Obligations</i> 06/22/72-06/30/76 FY76: TOTAL: \$50,936 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Strehlow, R. A. LERC/Marek, C. J. 41-Aero Engr |
| NSG 1150 University of Illinois - Chicago Circle 2075 A kinetic-theory approach to turbulent mixing and combustion <i>Period</i> <i>Obligations</i> 03/01/75-09/30/76 FY76: TOTAL: \$42,531 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Chung, P. M. LARC/Evans, J. S. 41-Aero Engr | NGR 14-005-194 University of Illinois - Urbana 2082 Low noise level general aviation propeller <i>Period</i> <i>Obligations</i> 11/09/72-09/14/76 FY76: \$50,000 TOTAL: \$192,854 <i>Prin. Invest.</i> <i>NASA Tech. Officer</i> <i>CASE Category</i> Ormsbee, A. I. LARC/Stickle, J. W. 41-Aero Engr Sivier, K. R. |

NASA'S UNIVERSITY PROGRAM
ILLINOIS (Continued)

NGR 14-005-200 **University of Illinois - Urbana** **2083**
Studies of discharge mechanisms occurring in high pressure gases with applications to high efficiency, high power lasers

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| <i>Period</i> | <i>Obligations</i> | |
| 04/06/73-05/30/77 | FY76: \$45,000 | TOTAL: \$149,860 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Verdeyen, J. T. | LERC/Dunning, J. W., Jr. | 13-Physics |
| Cherrington, B. E. | | |

NGR 14-005-202 **University of Illinois - Urbana** **2084**
Implementation of Illiac IV algorithms for multispectral image interpretation

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 02/27/73-01/01/77 | FY76: \$68,870 | TOTAL: \$250,524 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ray, R. M. | ARC/Slye, R. E. | 21-Mathematics |
| | ARC/Deerwester, J. M. | |

NGR 14-005-221 **University of Illinois - Urbana** **2085**
Quantitative studies of hair cells and nerve endings in the maculae and cochleae of animals, and in the vestibular and cochlear nuclei

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| <i>Period</i> | <i>Obligations</i> | |
| 01/01/74-10/01/76 | FY76: \$3,000 | TOTAL: \$77,957 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ades, H. W. | ARC/Mehler, W. R. | 53-Other Medical |

NSG 1063 **University of Illinois - Urbana** **2086**
Nuclear induced plasma kinetics

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|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/74-05/31/77 | FY76: \$27,500 | TOTAL: \$82,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Milev, G. H. | LARC/Hohl, F. | 13-Physics |

NSG 1233 **University of Illinois - Urbana** **2087**
Analytical and numerical study of compliant wall structures for skin-friction drag reduction

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| <i>Period</i> | <i>Obligations</i> | |
| 08/01/75-07/31/76 | FY76: \$31,000 | TOTAL: \$31,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lin, Y. K. | LARC/Hefner, J. N. | 41-Aero Engr |

NSG 1264 **University of Illinois - Urbana** **2088**
Theoretical investigation of response to two dimensional array of panels to convected boundary layer turbulence

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/76-12/31/76 | FY76: \$10,062 | TOTAL: \$10,062 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lin, Y. K. | LARC/Maestrello, L. | 41-Aero Engr |

NSG 2099 **University of Illinois - Urbana** **2089**
Neural control of locomotor performance in insects

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 09/01/75-08/31/76 | FY76: \$29,999 | TOTAL: \$29,999 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Heath, J. E. | ARC/Williams, B. A. | 51-Biology |

NSG 2119 **University of Illinois - Urbana** **2090**
Pilot interaction with automated airborne decision making systems

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 11/01/75-08/21/77 | FY76: \$74,085 | TOTAL: \$74,085 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rouse, W. B. | ARC/Wempe, T. E. | 99-Multi-Discip |
| | ARC/Huff, E. M. | |

NSG 3008 **University of Illinois - Urbana** **2091**
The analysis of the structure of blast waves from accidental explosions

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 05/10/74-05/31/77 | FY76: \$45,000 | TOTAL: \$144,845 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Strehlow, R. A. | LERC/Siewert, R. D. | 13-Physics |

NSG 3043 **University of Illinois - Urbana** **2092**
The effect of a zero g environment on flammability limits as determined using a standard flammability tube apparatus

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 05/21/75-05/20/77 | FY76: \$25,000 | TOTAL: \$50,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Strehlow, R. A. | LERC/Cochran, T. H. | 43-Chem Engr |

NSG 3056 **University of Illinois - Urbana** **2093**
Explosion, deflagration and fragmentation

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|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 05/21/75-05/20/76 | FY76: | TOTAL: \$25,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Strehlow, R. A. | LERC/Siewert, R. D. | 49-Engr, NEC |

NSG 3098 **University of Illinois - Urbana** **2094**
Transient dynamic analysis of high-speed lightly loaded cylindrical roller bearings

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 06/06/76-06/05/77 | FY76: \$22,510 | TOTAL: \$22,510 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Conry, T. F. | LERC/Scribbs, H. W. | 46-Mech Engr |
| | LERC/Coe, H. H. | |

NSG 5049 **University of Illinois - Urbana** **2095**
Effects of atmospheric refraction and turbulence on the accuracy of laser systems

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/75-09/30/76 | FY76: \$25,000 | TOTAL: \$49,777 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gardner, C. S. | GSFC/Buften, J. L. | 19-Phys Sci, NEC |
| Rao, N. N. | GSFC/Fitzmaurice, M. W. | |

NSG 7044 **University of Illinois - Urbana** **2096**
Evolution of the cell and the translation process

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|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/74-05/31/76 | FY76: | TOTAL: \$67,300 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Woese, C. R. | HQ-SB/Young, R. S. | 12-Chemistry |

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|--|--|----------------------|
| W-14133 | University of Illinois - Urbana | 2097 |
| Conference on The Middle Atmosphere Program (MAP) | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/24/76-04/01/77 | FY76: \$4,890 | TOTAL: \$4,890 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-SU/King, J., Jr. | 31-Atmos Sci |

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|---|------------------------------|----------------------|
| NCA 8-101 | Ball State University | 2098 |
| Investigation of Fresnel lens utilization in collecting solar energy for power generation | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/30/74-06/30/75 | FY76: | TOTAL: \$16,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cosby, R. M. | MSFC/Hastings, L. J. | 13-Physics |

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|--|------------------------------|----------------------|
| NCA 8-103 | Ball State University | 2099 |
| An investigation of Fresnel lens utilization in collecting solar energy for power generation | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/16/74-06/30/75 | FY76: | TOTAL: \$3,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cosby, R. M. | MSFC/Hastings, L. J. | 13-Physics |

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|---|------------------------------|----------------------|
| NCA 8-121 | Ball State University | 2100 |
| Investigation of cylindrical Fresnel lens as a solar collector | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/10/75-10/09/76 | FY76: \$22,000 | TOTAL: \$22,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cosby, R. M. | MSFC/Hastings, L. J. | 49-Engr, NEC |

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|---|--|--|---|--|--|----------------------|--|--|
| NAS 5-22987 | | | Indiana University - Bloomington | | | 2101 | | |
| Digital techniques applied to surface photometry of low contrast astronomical objects | | | | | | | | |
| <i>Period</i> | | | <i>Obligations</i> | | | | | |
| 02/11/76-02/11/77 | | | FY76: \$14,848 | | | TOTAL: \$14,848 | | |
| <i>Prin. Invest.</i> | | | <i>NASA Tech. Officer</i> | | | <i>CASE Category</i> | | |
| Falk, J. | | | GSFC/Hobbs, R. W. | | | 11-Astronomy | | |
| | | | GSFC/Brandt, J. C. | | | | | |

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|---|---------------------|----------------------------------|------------------|
| NASW 2467 | | Indiana University - Bloomington | 2102 |
| Regional information dissemination center | | | |
| Period | | Obligations | |
| 05/14/73-12/31/74 | FY76: | | TOTAL: \$422,202 |
| Prin. Invest. | NASA Tech. Officer | | CASE Category |
| Shriner, H. | HQ-KT/Holley, H. L. | | 99-Multi-Discip |

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|---|---|----------------------|
| NASW 2714 | Indiana University - Bloomington | 2103 |
| Operation of a regional dissemination center | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/74-09/30/75 | FY76: \$5,832 | TOTAL: \$210,250 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Shriner, H. | HO-KT/Holley, H. L. | 99-Multi-Discip |

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|--|----------------------------------|----------------------|
| NASW 2845 | Indiana University - Bloomington | 2104 |
| Operation of a NASA Industrial Applications Center | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/75-06/30/76 | FY76: \$152,200 | TOTAL: \$152,200 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Shriner, R. D. | HQ-KT/Bivins, R. G. | 99-Multi-Discip |
| | HO-KT/Voris, R. M. | |

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|--|---|------------------------|
| NCA 2-335501 | Indiana University - Bloomington | 2105 |
| Meteorite contribution to the chemistry of organogenic elements | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/01/75-01/31/76 | FY76: | TOTAL: \$13,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hayes, J. M. | ARC/Ziell, L. P. | 12-Chemistry |

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|--|--------------------|----------------------------------|------|
| NCA 2-335601 | | Indiana University - Bloomington | 2106 |
| Abundance and isotopic composition of carbon | | | |
| Period | | Obligations | |
| 02/01/76-01/31/77 | FY76: \$12,875 | TOTAL: \$12,875 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Hayes, J. M. | ARC/Zill, L. P. | 12-Chemistry | |

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|---|---|----------------------|
| NGL 15-003-002 | Indiana University - Bloomington | 2107 |
| A theoretical investigation of the steady state interaction between radiation and matter in stellar atmospheres | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/17/63-12/31/76 | FY76: | TOTAL: \$337,477 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, H. R. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |

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|---|---|----------------------|
| NGL 15-003-117 | Indiana University - Bloomington | 2108 |
| Study of effects of a stressful or abnormal environment on action of selected therapeutic drugs | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/19/72-04/30/76 | FY76: | TOTAL: \$165,467 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Maickel, R. P. | HQ-SB/Vinograd, S. P. | 52-Clinical Med |

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|---|----------------------------------|------------------|
| NGR 15-003-007 | Indiana University - Bloomington | 2109 |
| Investigation of neurological correlates of information reception | | |
| Period | Obligations | |
| 01/01/65-01/01/76 | FY76: | TOTAL: \$133,823 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neff, W. D. | ARC/Weisman, N. W. | 51-Biology |

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|-----------------------|--------------------|----------------------------------|------|
| NGR 15-003-105 | | Indiana University - Bloomington | 2110 |
| Lunar sample analysis | | | |
| Period | Obligations | | |
| 01/26/71-01/31/77 | FY76: \$28,800 | TOTAL: \$179,483 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Meinschein, W. G. | JSC/Harris, J. W. | 12-Chemistry | |

NASA'S UNIVERSITY PROGRAM INDIANA (Continued)

NGR 15-003-118 **Indiana University - Bloomington** **2111**
Application of ultra-high sensitivity isotope ratio mass spectrometry to organic geochemistry and cosmochemistry

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 06/20/72-05/31/77 | FY76: \$76,000 | TOTAL: \$251,966 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hayes, J. M. | HQ-SB/Young, R. S. | 32-Geological Sci |

NAS 2-7927 **Indiana Univ. - Indianapolis** **2112**
Radiobiological tests on mouse tissue

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 01/01/74-12/31/76 | FY76: | TOTAL: \$23,621 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zeman, W. | ARC/Haymaker, W. E. | 51-Biology |

NAS 3-18010 **Purdue University** **2113**
Research on multiple pure tone noise on a supersonic rotor propagating in an acoustically treated duct

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/13/73-11/12/75 | FY76: | TOTAL: \$38,742 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vaidya, P. G. | LERC/Minner, G. L. | 41-Aero Engr |

NAS 5-20793 **Purdue University** **2114**
Analysis of data for ERTS follow-on investigation

| Period | Obligations | |
|-------------------|------------------------|------------------|
| 03/25/75-01/25/77 | FY76: | TOTAL: \$120,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bauer, M. E. | GSFC/Stonesifer, G. R. | 59-Life Sci, NEC |

NAS 5-20922 **Purdue University** **2115**
Support for GSFC remote terminal connecting the Purdue/LARS computer

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 01/01/75-06/30/76 | FY76: | TOTAL: \$15,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Phillips, T. L. | GSFC/Pritchard, J. A. | 49-Engr, NEC |

NAS 5-22816 **Purdue University** **2116**
Utility of correlation techniques on gravity and magnetic interpretation study

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 11/24/75-11/24/76 | FY76: \$19,995 | TOTAL: \$19,995 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hinze, W. J. | GSFC/Langel, R. A. | 32-Geological Sci |
| Braile, L. W. | GSFC/Mead, G. D. | |

NAS 6-2613 **Purdue University** **2117**
Services in support of LARS remote data terminal

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/02/75-07/31/75 | FY76: \$3,900 | TOTAL: \$20,111 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Phillips, T. L. | WFC/Maurer, H. E. | 39-Env Sci, NEC |
| | WFC/Hancock, D. W. | |

NAS 6-2695 **Purdue University** **2118**
Services in support of a remote LAESYS terminal flight center

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/15/75-09/14/76 | FY76: \$20,835 | TOTAL: \$20,835 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Phillips, T. L. | WFC/Maurer, H. E. | 39-Env Sci, NEC |
| Schwingendorf, S. | WFC/Hancock, D. W. | |

NAS 9-13380 **Purdue University** **2119**
Description and interdisciplinary analysis of multispectral satellite data for selected cover types in Colorado mountains, using ADP techniques

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/30/73-06/30/76 | FY76: | TOTAL: \$215,181 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hoffer, R. M. | JSC/Joosten, R. E. | 39-Env Sci, NEC |

NAS 9-14016 **Purdue University** **2120**
Applications of remote sensing

| Period | Obligations | |
|-------------------|--------------------|--------------------|
| 06/01/74-05/31/76 | FY76: \$1,024,964 | TOTAL: \$2,790,454 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Landgrebe, D. A. | JSC/Potter, A. E. | 39-Env Sci, NEC |

NAS 9-14970 **Purdue University** **2121**
Applications research and techniques development for remote sensing

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 06/01/76-05/31/77 | FY76: \$280,600 | TOTAL: \$280,600 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Landgrebe, D. A. | JSC/Grandfield, A. L. | 39-Env Sci, NEC |

NCA 2-605501 **Purdue University** **2122**
Combined analytical-experimental investigation of short, annular, subsonic diffusers

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/21/75-05/31/76 | FY76: | TOTAL: \$12,308 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Smith, C. R. | ARC/Zill, L. P. | 41-Aero Engr |

NGL 15-005-140 **Purdue University** **2123**
Origin of chondrites from relationships between fourteen key trace elements

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 06/21/71-02/28/78 | FY76: \$48,000 | TOTAL: \$305,437 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lipschutz, M. E. | HQ-SL/French, B. M. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NGL 15-005-175 **Purdue University** **2124**
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/01/73-01/31/76 | FY76: | TOTAL: \$19,331 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Taylor, L. A. | JSC/Harris, J. W. | 13-Physics |

NASA'S UNIVERSITY PROGRAM
INDIANA (Continued)

NGL 15-005-186 **Purdue University** **2125**
Application of remote sensing technology to solution of problems
in management of resources

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/19/73-05/31/79 | FY76: \$200,000 | TOTAL: \$995,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Weismiller, R. A. | HQ-P/Vitale, J. A. | 39-Env Sci, NEC |

NGR 15-005-119 **Purdue University** **2126**
Research on lift and viscous cross flow

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/06/70-08/31/76 | FY76: | TOTAL: \$138,729 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Marshall, F. J. | LARC/Landrum, E. J. | 41-Aero Engr |
| | LARC/Barger, R. L. | |

NGR 15-005-147 **Purdue University** **2127**
Gas film cooling of turbine blades

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/10/71-07/31/75 | FY76: | TOTAL: \$50,149 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lecuyer, M. R. | LERC/Davison, H. W. | 41-Aero Engr |

NGR 15-005-157 **Purdue University** **2128**
Lunar sample analysis

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/72-01/31/77 | FY76: \$25,000 | TOTAL: \$101,224 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Meyer, H. O. | JSC/Harris, J. W. | 13-Physics |

NGR 15-005-162 **Purdue University** **2129**
Flow characteristics in aircraft inlets

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/12/72-12/31/75 | FY76: | TOTAL: \$49,973 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffman, J. D. | LERC/Bishop, A. R. | 41-Aero Engr |

NGR 15-005-180 **Purdue University** **2130**
Purdue-NASA cooperative program in computer- aided design
and computer graphics

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/10/73-06/14/76 | FY76: | TOTAL: \$170,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Anderson, D. C. | ARC/Gregory, T. J. | 49-Engr, NEC |
| | ARC/Carmichael, R. L. | |

NGR 15-005-191 **Purdue University** **2131**
Calculation of the flow field and the viscous inviscid flow
interaction in aircraft inlets

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/01/74-12/31/76 | FY76: \$31,891 | TOTAL: \$90,180 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffman, J. D. | LERC/Bishop, A. R. | 41-Aero Engr |

NSG 1278 **Purdue University** **2132**
Prediction of strength and its statistical distribution in laminated
composites

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/09/76-08/08/76 | FY76: \$19,880 | TOTAL: \$19,880 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sun, C. T. | LARC/Davidson, J. R. | 47-Materials Engr |
| | LARC/Illg, W. | |

NSG 1293 **Purdue University** **2133**
Noise in turbulent flow

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/01/76-03/31/77 | FY76: \$22,478 | TOTAL: \$22,478 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kentzer, C. P. | LARC/Pao, S. P. | 41-Aero Engr |
| | LARC/Maestrello, L. | |

NSG 2135 **Purdue University** **2134**
Time-dependent transport of energy in the wall region of the
compressible turbulent boundary layer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/76-02/28/77 | FY76: \$35,477 | TOTAL: \$35,477 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Abbott, D. E. | ARC/Tobak, M. | 41-Aero Engr |
| | ARC/Rubessin, M. W. | |

NSG 2158 **Purdue University** **2135**
Study of rationalization of the airline route structure for greater
efficiency, reduced energy consumption and improved service

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/01/76-02/28/77 | FY76: \$20,790 | TOTAL: \$20,790 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Drake, J. W. | ARC/Williams, L. J. | 41-Aero Engr |

NSG 3029 **Purdue University** **2136**
Multiple pure tone noise radiation from a supersonic rotor in
an acoustically treated duct

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/11/74-02/11/76 | FY76: | TOTAL: \$54,864 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Peterson, A. M. | LERC/Feiler, C. E. | 46-Mech Engr |
| Despain, A. M. | LERC/Rice, E. J. | |
| Kisner, L. S. | | |

NSG 3071 **Purdue University** **2137**
Gas film cooling of turbine vane surfaces

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/75-08/31/78 | FY76: \$53,067 | TOTAL: \$53,067 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| L'ecuyer, M. R. | LERC/Davidson, H. W. | 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM **INDIANA (Continued)**

NSG 3105 **Purdue University** **2138**
Expanding capabilities of NASA computer programs for fluid flow computations in turbomachinery

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/76-05/31/79 | FY76: \$56,131 | TOTAL: \$56,131 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Thompson, H. D. | LERC/Katsanis, T. | 41-Aero Engr |
| Ragsdell, K. M. | | |

NSG 4003 **Purdue University** **2139**
Handling and ride qualities of large flexible control-configured aircraft

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/01/75-12/31/78 | FY76: \$80,000 | TOTAL: \$118,295 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Swaim, R. L. | DFRC/Berry, D. T. | 41-Aero Engr |
| | DFRC/Cazier, F. W. | |

NSG 5010 **Purdue University** **2140**
Investigations pertaining to encoding of multispectral scanner data

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 06/15/74-10/14/76 | FY76: \$29,405 | TOTAL: \$75,955 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wintz, P. A. | GSFC/Lynch, T. J. | 32-Geological Sci |

NSG 7167 **Purdue University** **2141**
High-time resolution photometry of flare stars simultaneous with X-ray satellite observations

| Period | Obligations | |
|-------------------|------------------------|----------------|
| 10/01/75-09/30/76 | FY76: \$7,095 | TOTAL: \$7,095 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Moffett, T. J. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NSG 1258 **Rose-Hulman Institute of Technology** **2142**
Analysis of moving ground plane data

| Period | Obligations | |
|-------------------|----------------------|----------------|
| 06/01/76-09/30/76 | FY76: \$3,556 | TOTAL: \$3,556 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Roper, A. T. | LARC/Margason, R. J. | 41-Aero Engr |

NAS 3-20087 **University of Notre Dame** **2143**
Study of burning of liquid pools in reduced gravity

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 02/23/76-06/12/77 | FY76: \$27,898 | TOTAL: \$27,898 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kanury, M. | LERC/Cochran, T. H. | 13-Physics |

NSG 1102 **University of Notre Dame** **2144**
Passive and active elements of optical integrated circuits

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 09/23/74-09/22/76 | FY76: \$25,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Magee, C. J. | LARC/Hendricks, H. D. | 45-Elec Engr |
| | LARC/Hutchby, J. A. | |

NSG 3037 **University of Notre Dame** **2145**
Influence of blade loading on the acoustic response of a cascade

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 08/15/74-08/14/77 | FY76: | TOTAL: \$56,115 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Atassi, H. | LERC/Feiler, C. E. | 41-Aero Engr |
| Berg, D. | LERC/Goldstein, M. E. | |

NSG 3048 **University of Notre Dame** **2146**
Alternatives for jet engine control

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/01/75-02/28/77 | FY76: \$30,000 | TOTAL: \$55,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Leake, R. J. | LERC/Lehtinen, B. | 45-Elec Engr |
| Sain, M. K. | | |
| Melsa, J. L. | | |

NSG 3070 **University of Notre Dame** **2147**
Simulation and experimental studies of microwave to dc energy conversion systems

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/01/75-05/31/76 | FY76: | TOTAL: \$34,301 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nahas, J. J. | LERC/Kish, J. A. | 19-Phys Sci, NEC |
| | LERC/Myers, I. T. | |

NSG 5025 **University of Notre Dame** **2148**
Coordinated research design of coding and modulation systems

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 09/01/74-11/30/76 | FY76: \$24,000 | TOTAL: \$57,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Massey, J. L. | GSFC/Lynch, T. J. | 45-Elec Engr |
| | GSFC/Poland, W. B., Jr. | |

IOWA

NCA 2-340405 **Iowa State University** **2149**
Contraction and accretion models of Jupiter and Saturn

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/01/74-05/31/75 | FY76: | TOTAL: \$1,245 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Grossman, A. S. | ARC/Zill, L. P. | 19-Phys Sci, NEC |

NCA 2-340406 **Iowa State University** **2150**
Continued study of shock tube flow over airfoils

| Period | Obligations | |
|-------------------|--------------------|---------------|
| 06/01/74-03/31/75 | FY76: | TOTAL: \$500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cook, W. J. | ARC/Zill, L. P. | 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM

IOWA (Continued)

NCA 2-340501 **Iowa State University** **2151**
Simulation of the eolian modification of Martian craters
Period *Obligations*
09/01/74-08/31/75 FY76: TOTAL: \$11,102
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Iversen, J. D. ARC/Zill, L. P. 32-Geological Sci

NCA 2-340502 **Iowa State University** **2152**
A study on parameter identifiability and accuracy of parameter estimates
Period *Obligations*
09/01/74-01/01/76 FY76: TOTAL: \$10,501
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herget, C. J. ARC/Zill, L. P. 21-Mathematics

NCA 2-340503 **Iowa State University** **2153**
Computation of cone field flows at large angles of attack
Period *Obligations*
03/01/75-02/28/76 FY76: TOTAL: \$10,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. A. ARC/Zill, L. P. 41-Aero Engr

NCA 2-340504 **Iowa State University** **2154**
Theoretical models of Jupiter, Saturn, and the atmospheres of carbon stars
Period *Obligations*
06/01/75-10/29/75 FY76: \$715 TOTAL: \$5,815
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grossman, A. S. ARC/Zill, L. P. 31-Atmos Sci

NCA 2-340505 **Iowa State University** **2155**
Viscous corner flow studies
Period *Obligations*
03/01/75-03/31/76 FY76: TOTAL: \$15,412
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. A. ARC/Zill, L. P. 41-Aero Engr

NCA 2-340506 **Iowa State University** **2156**
Investigation of the use of shock tubes in transonic testing
Period *Obligations*
04/01/75-01/31/76 FY76: TOTAL: \$15,145
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cook, W. J. ARC/Zill, L. P. 41-Aero Engr

NCA 2-340601 **Iowa State University** **2157**
Simulation of the eolian modification of Martian craters
Period *Obligations*
09/01/75-08/31/76 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Iversen, J. D. ARC/Zill, L. P. 32-Geological Sci

NCA 2-340602 **Iowa State University** **2158**
Theoretical studies of Jupiter, Saturn, and the atmospheres of carbon stars
Period *Obligations*
10/30/75-10/29/76 FY76: \$6,865 TOTAL: \$6,865
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grossman, A. S. ARC/Zill, L. P. 11-Astronomy

NCA 2-340603 **Iowa State University** **2159**
Conical flow fields at large angles of attack
Period *Obligations*
04/01/76-03/31/77 FY76: \$13,303 TOTAL: \$13,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Levenson, L. L. ARC/Zill, L. P. 13-Physics

NCA 2-340604 **Iowa State University** **2160**
Shock diffraction studies
Period *Obligations*
04/01/76-03/31/77 FY76: \$12,900 TOTAL: \$12,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, D. A. ARC/Zill, L. P. 13-Physics

NGR 16-002-038 **Iowa State University** **2161**
Calculation of viscous compressible flow
Period *Obligations*
10/07/71-12/31/76 FY76: \$21,242 TOTAL: \$91,799
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tannehill, J. C. ARC/Rakich, J. V. 41-Aero Engr
Holst, T. L. ARC/Marvin, J. G.

NSG 2040 **Iowa State University** **2162**
Role of turbulence in vortex wake decay
Period *Obligations*
09/01/74-11/30/76 FY76: \$38,963 TOTAL: \$78,918
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Iversen, J. D. ARC/Rossow, V. J. 41-Aero Engr
ARC/Corsiglia, V. R.

NSG 2091 **Iowa State University** **2163**
Study of viscous cross-flow effects on cylinders at high Reynolds numbers
Period *Obligations*
07/01/75-01/01/77 FY76: TOTAL: \$34,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
James, W. D. ARC/Chapman, G. T. 41-Aero Engr
ARC/Malcolm, G. N.

NSG 2150 **Iowa State University** **2164**
A study on parameter identifiability and accuracy of system models
Period *Obligations*
04/01/76-06/30/77 FY76: \$19,883 TOTAL: \$19,883
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herget, C. J. ARC/Chapman, G. T. 41-Aero Engr
ARC/Malcolm, G. N.

NASA'S UNIVERSITY PROGRAM **IOWA (Continued)**

NSG 2152 **Iowa State University** **2165**
High Reynolds number transonic airfoil testing in shock tubes
Period *Obligations*
04/01/76-03/31/77 FY76: \$20,192 TOTAL: \$20,192
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cook, W. J. ARC/Presley, L. L. 41-Aero Engr
ARC/Chapman, G. T.

NSG 3033 **Iowa State University** **2166**
Blade surface boundary layer and wake computation model study
Period *Obligations*
09/01/74-08/31/77 FY76: TOTAL: \$44,493
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Serovy, G. K. LERC/Sockol, P. M. 41-Aero Engr

NAS 1-13129 **University of Iowa** **2167**
Hawkeye/neutral point Explorer experiments
Period *Obligations*
05/20/74-08/03/76 FY76: \$263,000 TOTAL: \$1,008,617
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. LARC/Coffee, C. W., Jr. 13-Physics
Frank, L. A.
Gurnett, D. A.

NAS 2-6553 **University of Iowa** **2168**
Pioneer F/G data analysis-Jovian charged particles experiment
Period *Obligations*
07/21/71-06/30/76 FY76: \$97,657 TOTAL: \$438,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 5-11064 **University of Iowa** **2169**
Low energy electrons and protons experiment for IMP-H & J
Period *Obligations*
05/31/68-12/31/76 FY76: TOTAL: \$736,656
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Davis, M. A. 13-Physics

NAS 5-11167 **University of Iowa** **2170**
Ac electric fields experiment for S3A
Period *Obligations*
09/25/68-06/30/75 FY76: TOTAL: \$316,202
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Denwiddie, M. 13-Physics

NAS 5-11265 **University of Iowa** **2171**
UK-4 low energy proton and electron differential energy analyzer experiment
Period *Obligations*
01/30/70-12/31/75 FY76: \$29,182 TOTAL: \$482,494
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craven, J. D. GSFC/Eaker, H. L. 13-Physics
Frank, L. A.

NAS 5-11279 **University of Iowa** **2172**
Solar wind plasma wave experiment for the Helios missions
Period *Obligations*
03/30/70-02/01/79 FY76: \$125,000 TOTAL: \$1,210,645
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/White, C. E. 11-Astronomy

NAS 5-11431 **University of Iowa** **2173**
Ac electric and magnetic fields experiment
Period *Obligations*
05/21/71-10/31/76 FY76: \$10,461 TOTAL: \$548,387
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Davis, M. A. 31-Atmos Sci

NAS 5-20093 **University of Iowa** **2174**
Plasma wave experiment for International Sun-Earth Explorer spacecraft A and B
Period *Obligations*
05/20/74-07/30/80 FY76: \$688,000 TOTAL: \$1,001,477
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gurnett, D. A. GSFC/Davis, M. A. 13-Physics

NAS 5-20094 **University of Iowa** **2175**
Magnetospheric and interplanetary plasma for International Sun-Earth Explorer mother & daughter spacecraft
Period *Obligations*
05/20/74-10/31/79 FY76: \$344,000 TOTAL: \$656,642
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frank, L. A. GSFC/Davis, M. A. 13-Physics

NAS 5-20539 **University of Iowa** **2176**
Spacecraft control and telemetry station operations
Period *Obligations*
06/03/74-08/02/76 FY76: \$349,995 TOTAL: \$801,452
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. GSFC/Allen, R. F., Jr. 11-Astronomy
Frank, L. A. GSFC/Sanford, R. G.
Gurnett, D. A.

NAS 9-13313 **University of Iowa** **2177**
Investigation of Skylab data EREP No. 393
Period *Obligations*
03/09/73-09/30/76 FY76: \$4,522 TOTAL: \$38,522
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoppin, R. A. JSC/Amsbury, D. L. 32-Geological Sci

NGL 16-001-002 **University of Iowa** **2178**
Theoretical & experimental studies related to particles & fields associated with major bodies of solar system & with interplanetary space
Period *Obligations*
05/23/62-11/30/78 FY76: \$240,037 TOTAL: \$4,574,233
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Van Allen, J. A. HQ-ST/Taylor, W. W. 13-Physics
HQ-ST/Schmerling, E. R.

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

NASA'S UNIVERSITY PROGRAM

IOWA (Continued)

NGL 16-001-043 **University of Iowa** **2179**
Waves in plasmas
Period *Obligations*
03/28/67-11/30/78 FY76: \$55,000 TOTAL: \$687,986
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Montgomery, D. C. HQ-ST/Cauffman, D. P. 13-Physics
HQ-ST/Schmerling, E. R.

KANSAS

NAS 9-14533 **Kansas State University** **2180**
Prediction of wheat yield
Period *Obligations*
02/15/75-03/31/77 FY76: \$99,000 TOTAL: \$179,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feyerherm, A. M. JSC/Barnett, T. L. 39-Env Sci, NEC

NAS 9-14899 **Kansas State University** **2181**
Estimated winter wheat yield from crop growth predicted by LANDSAT
Period *Obligations*
03/15/76-03/31/77 FY76: \$44,900 TOTAL: \$44,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kanemasu, E. T. JSC/Barnett, T. L. 31-Atmos Sci

NCA 2-363501 **Kansas State University** **2182**
Image enhancement and classification techniques
Period *Obligations*
06/06/75-12/31/75 FY76: TOTAL: \$4,990
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahmed, N. ARC/Zill, L. P. 45-Elec Engr
Natarajan, T.

NCA 2-363601 **Kansas State University** **2183**
Adaptive transform processing of multispectral data
Period *Obligations*
12/01/75-07/31/76 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ahmed, N. ARC/Zill, L. P. 39-Env Sci, NEC

NGL 17-001-026 **Kansas State University** **2184**
Infrared laboratory studies of synthetic planetary atmospheres
Period *Obligations*
01/10/67-11/30/77 FY76: \$25,000 TOTAL: \$252,554
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, D. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NSG 5101 **Kansas State University** **2185**
Research of solar insolation at the earth surface from cloud cover
Period *Obligations*
03/01/76-08/31/77 FY76: \$24,972 TOTAL: \$24,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kanemasu, E. T. GSFC/Salomonsen, V. V. 31-Atmos Sci
GSFC/Ormsby, J. P.

NAS 1-12976 **University of Kansas** **2186**
Compressible vortex flow characteristics
Period *Obligations*
07/01/74-07/15/77 FY76: TOTAL: \$39,395
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muirhead, V. U. LARC/Ward, J. F. 41-Aero Engr

NAS 4-2148 **University of Kansas** **2187**
Flight test program of an attitude command control system and report of findings
Period *Obligations*
02/01/74-06/01/76 FY76: \$266,491 TOTAL: \$883,491
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roskam, J. DFRC/Gee, S. W. 41-Aero Engr

NAS 5-20943 **University of Kansas** **2188**
Analysis of data for ERTS follow-on investigation
Period *Obligations*
03/10/75-01/10/77 FY76: TOTAL: \$52,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haralick, R. M. GSFC/Broderick, J. C. 32-Geological Sci

NAS 5-22325 **University of Kansas** **2189**
Earth observation radar concept study
Period *Obligations*
04/18/75-06/14/77 FY76: \$15,000 TOTAL: \$45,395
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, R. K. GSFC/Eckerman, J. 32-Geological Sci

NAS 5-22384 **University of Kansas** **2190**
Water resource study
Period *Obligations*
05/19/75-07/15/76 FY76: TOTAL: \$26,427
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, R. K. GSFC/Shiue, J. C. 39-Env Sci, NEC

NAS 9-10261 **University of Kansas** **2191**
Radar systems studies
Period *Obligations*
01/12/70-07/31/76 FY76: \$204,495 TOTAL: \$1,299,942
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ulabay, F. T. JSC/Hatcher, N. M. 39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)

NAS 9-14052 **University of Kansas** **2192**
 Joint soil moisture experiment
Period *Obligations*
 04/01/74-03/31/77 FY76: \$99,400 TOTAL: \$191,643
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ulaby, F. T. JSC/Buras, N. T. 39-Env Sci, NEC

NAS 9-14453 **University of Kansas** **2193**
 Development of textural/spatial pattern recognition techniques
Period *Obligations*
 12/15/74-04/12/76 FY76: TOTAL: \$49,982
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Haralick, R. M. JSC/Patteson, A. W. 39-Env Sci, NEC
 JSC

NGL 17-004-024 **University of Kansas** **2194**
 Research on the applications of satellite remote sensing
Period *Obligations*
 04/06/72-03/31/79 FY76: \$100,001 TOTAL: \$600,001
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Barr, B. G. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGR 17-002-072 **University of Kansas** **2195**
 Advanced technology applications for general aviation aircraft
Period *Obligations*
 10/14/69-09/16/77 FY76: \$3,150 TOTAL: \$912,430
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kohlman, D. L. LARC/Crane, H. L. 41-Aero Engr

NGR 17-002-106 **University of Kansas** **2196**
 Possible contemporaneous climate changes on Earth and Mars determined by Martian statistical geomorphology
Period *Obligations*
 08/30/72-05/31/76 FY76: TOTAL: \$6,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Warnke, D. E. HQ-SL/Dwornik, S. E. 32-Geological Sci

NGR 17-004-027 **University of Kansas** **2197**
 An experimental investigation of lightning damage to selected composite materials and associated protective systems
Period *Obligations*
 05/18/72-12/31/76 FY76: \$26,859 TOTAL: \$76,076
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lenzen, K. H. LARC/Pride, R. A. 41-Aero Engr
 Lorenz, S. A. LARC/Davis, J. G., Jr.

NSG 1046 **University of Kansas** **2198**
 Effects of aeroelasticity on control effectiveness
Period *Obligations*
 06/10/74-11/15/76 FY76: \$30,307 TOTAL: \$59,972
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roskam, J. LARC/Lamar, J. E. 41-Aero Engr
 Mehrotra, S. LARC/Polhamus, E. C.

NSG 1122 **University of Kansas** **2199**
 Measuring mode shapes of vibrating, rotating helicopter blades
Period *Obligations*
 11/13/74-07/31/76 FY76: \$20,796 TOTAL: \$41,268
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lenzen, K. H. LARC/Naumann, E. C. 41-Aero Engr
 Reese, C. D.

NSG 1139 **University of Kansas** **2200**
 Further applications of a wing-jet interaction theory
Period *Obligations*
 01/01/75-12/31/76 FY76: \$28,239 TOTAL: \$55,551
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lan, C. E. LARC/Campbell, J. F. 41-Aero Engr

NSG 1142 **University of Kansas** **2201**
 An analysis of infinite arrays for large microstrip antenna design
Period *Obligations*
 06/01/75-12/31/76 FY76: \$10,354 TOTAL: \$30,215
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Biggs, A. W. LARC/Bailey, M. C. 45-Elec Engr
 Parks, F. G. LARC/Croswell, W. F.

NSG 1227 **University of Kansas** **2202**
 Flight test evaluation of a spoiler roll control system on a twin-engine light airplane
Period *Obligations*
 09/17/75-08/16/76 FY76: \$33,745 TOTAL: \$33,745
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kohlman, D. L. LARC/Crane, H. L. 41-Aero Engr

NSG 1269 **University of Kansas** **2203**
 Methods for the prediction of primary creep behavior in metals
Period *Obligations*
 01/01/76-12/31/76 FY76: \$32,105 TOTAL: \$32,105
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Zerwekh, R. P. LARC/Rummler, D. R. 47-Materials Engr
 LARC/Stein, B. A.

NSG 1281 **University of Kansas** **2204**
 Statistical distribution of mechanical properties of graphite-epoxies
Period *Obligations*
 07/15/76-07/14/77 FY76: \$15,088 TOTAL: \$15,088
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Reesie, C. D. LARC/Howell, W. E. 47-Materials Engr
 LARC/Pride, R. A.

NSG 1301 **University of Kansas** **2205**
 Reduction of interior noise in general aviation airplanes
Period *Obligations*
 05/01/76-04/30/77 FY76: \$29,914 TOTAL: \$29,914
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Roskam, J. LARC/Stephens, D. G. 41-Aero Engr
 Kohlman, D. L. LARC/Cawthorn, J. M.
 Irhead, M. U.

NASA'S UNIVERSITY PROGRAM KANSAS (Continued)

NSG 1302 **University of Kansas** **2206**
A parametric investigation of aerodynamic performance for upper-surface-blowing and over-wing blowing configurations
Period *Obligations*
06/16/76-06/15/77 FY76: \$19,242 TOTAL: \$19,242
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lan, C. E. LARC/Campbell, J. F. 41-Aero Engr
Fillman, G.

NSG 1310 **University of Kansas** **2207**
Counting techniques for red tide and coliform organisms
Period *Obligations*
06/07/76-08/21/76 FY76: \$5,369 TOTAL: \$5,369
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lenzen, K. H. LARC/Pritchard, E. B. 44-Civil Engr

NSG 2145 **University of Kansas** **2208**
A study of airplane design optimization
Period *Obligations*
05/16/76-12/15/76 FY76: \$32,590 TOTAL: \$32,590
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roskam, J. ARC/Galloway, T. L. 41-Aero Engr

NSG 3087 **University of Kansas** **2209**
Portable solar energy collector test unit
Period *Obligations*
11/15/75-11/14/76 FY76: \$21,310 TOTAL: \$21,310
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lenzen, K. H. LERC/Couch, J. P. 46-Mech Engr
Hotchkiss, G. B.

NSG 4004 **University of Kansas** **2210**
Ground vehicles
Period *Obligations*
01/16/75-06/16/76 FY76: TOTAL: \$18,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muirhead, V. U. DFRC/Horton, V. W. 49-Engr, NEC
DFRC/Saltzman, E. J.

NSG 4006 **University of Kansas** **2211**
Structural analyses of ultra-high speed aircraft structural components
Period *Obligations*
05/01/75-01/15/78 FY76: TOTAL: \$35,864
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lenzen, K. H. DFRC/Fields, R. A. 41-Aero Engr
Siegel, W. DFRC/Jenkins, J. M.

NSG 4007 **University of Kansas** **2212**
Modification and testing of a remotely augmented vehicle system
Period *Obligations*
07/01/75-06/30/77 FY76: TOTAL: \$41,486
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roskam, J. ARC/Zill, L. P. 41-Aero Engr
Grose, D.

NSG 4008 **University of Kansas** **2213**
Analysis of structural components for ultra high speed aircraft
Period *Obligations*
05/01/76-04/30/78 FY76: \$40,416 TOTAL: \$40,416
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lenzen, K. H. DFRC/Jenkins, J. M. 41-Aero Engr

NSG 4009 **University of Kansas** **2214**
An investigation of drag reduction for tractor trailer vehicles
Period *Obligations*
07/01/76-06/30/77 FY76: \$9,052 TOTAL: \$9,052
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muirhead, V. U. DFRC/Saltzman, E. J. 49-Engr, NEC

NSG 5086 **University of Kansas** **2215**
Internal structure of thunderstorms
Period *Obligations*
12/01/75-11/30/76 FY76: \$20,376 TOTAL: \$20,376
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Eagleman, J. R. GSFC/Wexler, R. 31-Atmos Sci

NGR 17-003-018 **Wichita State University** **2216**
Numerical methods for the investigation of transmission and attenuation of sound in acoustically treated ducts
Period *Obligations*
07/24/72-09/01/75 FY76: TOTAL: \$49,420
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Eversman, W. LERC/Rice, E. J. 13-Physics

NGR 17-003-021 **Wichita State University** **2217**
Experimental studies of flow separation and stalling on two-dimensional airfoils at low speeds, phase I
Period *Obligations*
12/01/73-08/31/76 FY76: TOTAL: \$86,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wentz, W. H., Jr. LARC/Noonan, K. W. 41-Aero Engr
Seetharam, H. C. LARC/McGhee, R. J.

NSG 1165 **Wichita State University** **2218**
Computer and wind tunnel development of flaps and control surfaces for advanced technology general aviation airfoils
Period *Obligations*
06/01/75-08/31/76 FY76: TOTAL: \$83,724
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wentz, W. H., Jr. LARC/McGhee, R. J. 41-Aero Engr
Seetharam, H. C. LARC/Crane, H. L.

NSG 1189 **Wichita State University** **2219**
Development of capabilities for stall/spin research
Period *Obligations*
06/01/75-06/30/76 FY76: TOTAL: \$14,833
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, A. J. LARC/Bowman, J. S., Jr. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM
KANSAS (Continued)

NSG 1192 **Wichita State University** **2220**
Analytical model for separated flow on wings
Period *Obligations*
06/01/75-07/31/76 **FY76:** **TOTAL: \$29,358**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zumwalt, G. W. LARC/Morgan, H. L., Jr. 41-Aero Engr
Seetharam, H. C. LARC/Pierpont, P. K.

NSG 2134 **Wichita State University** **2221**
Wind tunnel investigations of computer designed airfoil section modifications
Period *Obligations*
02/01/76-01/31/77 **FY76: \$10,163** **TOTAL: \$10,163**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wentz, W. H., Jr. ARC/Hicks, R. M. 41-Aero Engr

KENTUCKY

NSG 801 **Kentucky State University** **2222**
Zoological effects of variations in atmospheric oxygen levels
Period *Obligations*
02/27/74-04/30/77 **FY76: \$41,214** **TOTAL: \$98,940**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kloek, G. KSC/Morrison, J. D. 59-Life Sci, NEC

NSG 8008 **Kentucky State University** **2223**
Synthesis of organosiloxo transition metal polymers
Period *Obligations*
04/15/74-04/14/75 **FY76:** **TOTAL: \$21,981**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marano, G. A. MSFC/Patterson, W. J. 12-Chemistry
MSFC/Kent, M. I.

NAS 2-8883 **University of Kentucky** **2224**
Design, fabrication, testing and installation of oscillating platform
Period *Obligations*
06/02/75-12/31/76 **FY76: \$48,623** **TOTAL: \$88,623**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Knapp, C. E. ARC/McCutcheon, E. P. 46-Mech Engr

NAS 8-31006 **University of Kentucky** **2225**
Remote sensing of effects of land use practices on water quality
Period *Obligations*
10/11/74-12/31/76 **FY76:** **TOTAL: \$40,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Graves, D. H. MSFC/Palupan, C. T. 39-Env Sci, NEC
MSFC/Downs, S. W., Jr.

NAS 9-14392 **University of Kentucky** **2226**
Limb volume measuring system studies
Period *Obligations*
10/01/74-09/30/76 **FY76: \$14,855** **TOTAL: \$44,836**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lafferty, J. F. JSC/Jackson, M. M. 46-Mech Engr

NGL 18-001-042 **University of Kentucky** **2227**
Investigation of the role of ion impurities in mechanical failures
Period *Obligations*
04/18/69-05/31/76 **FY76:** **TOTAL: \$80,304**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leipold, M. H. LERC/Sanders, W. A. 47-Materials Engr

NGR 18-001-058 **University of Kentucky** **2228**
Lunar sample analysis
Period *Obligations*
01/12/71-01/31/77 **FY76: \$30,000** **TOTAL: \$184,012**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ehmann, W. D. JSC/Harris, J. W. 13-Physics

NGR 18-001-083 **University of Kentucky** **2229**
Effects of elevated gravity upon gas flames
Period *Obligations*
08/01/73-09/30/76 **FY76:** **TOTAL: \$19,989**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hsu, N. N. LERC/Haggard, J. B., Jr. 13-Physics
Eichhorn, R.

NGR 18-001-086 **University of Kentucky** **2230**
Evaluation of multistep thermal process for production of hydrogen from water
Period *Obligations*
03/29/73-02/29/76 **FY76:** **TOTAL: \$114,935**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Conger, W. I. LERC/Gordon, S. 12-Chemistry
Funk, J. E.

NSG 1273 **University of Kentucky** **2231**
Development of a global pollution model for CH₄ and CO
Period *Obligations*
02/15/76-08/14/77 **FY76: \$8,279** **TOTAL: \$8,279**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Peters, L. K. LARC/Reichle, H. G., Jr. 31-Atmos Sci

NSG 3013 **University of Kentucky** **2232**
Fracture toughness testing of beryllium
Period *Obligations*
07/01/74-06/30/77 **FY76:** **TOTAL: \$20,727**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Conrad, H. LERC/Brown, W. F., Jr. 47-Materials Engr
Sargent, G. A. LERC/Jones, M. H.

NAS 8-31233 **University of Louisville** **2233**
Turbopump technology improvements via transient rotordynamics analysis
Period *Obligations*
11/14/74-02/01/77 **FY76: \$24,000** **TOTAL: \$44,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Childs, D. W. MSFC/Gross, L. A. 42-Astro Engr
MSFC/Pitsenberger, F. D.

NASA'S UNIVERSITY PROGRAM **KENTUCKY (Continued)**

NAS 9-14632 **University of Louisville** **2234**
ASTP/Cosmos fundulus embryo development experiment

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/14/75-08/15/77 | FY76: \$58,000 | TOTAL: \$133,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Keefe, J. R. | JSC/Hoffman, R. A. | 51-Biology |

NSG 1220 **University of Louisville** **2235**
Effects of overt emotionality on reactions to aircraft noise

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/01/75-09/30/76 | FY76: \$62,876 | TOTAL: \$62,876 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Loeb, M. | LARC/Mayes, W. H. | 69-Psych, NEC |
| Repko, J. D. | | |

NSG 2067 **University of Louisville** **2236**
The efferent component of the vestibular nerve in the bullfrog

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/15/75-02/28/77 | FY76: \$4,000 | TOTAL: \$11,432 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Fuller, P. M. | ARC/Mehler, W. R. | 51-Biology |
| Prior, D. J. | | |

LOUISIANA

NSG 8018 **Dillard University** **2237**
Vegetation types and conditions as revealed by aerial infrared photography

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/01/74-09/01/75 | FY76: | TOTAL: \$24,180 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rogers, R. | MSFC/Paludan, C. T. | 39-Env Sci, NEC |
| Roussell, N. | MSFC/Kent, M. I. | |

NGR 19-011-007 **Grambling State University** **2238**
Study of low frequency hydromagnetic waves using ATS-1 data

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 11/30/70-06/30/76 | FY76: | TOTAL: \$66,695 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cummings, W. D. | HQ-ST/Cauffman, D. P. | 13-Physics |

NGR 19-011-012 **Grambling State University** **2239**
Theoretical investigation of isotopic anomaly of xenon in carbonaceous chondrites

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/24/72-02/28/77 | FY76: \$8,780 | TOTAL: \$42,320 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sabu, D. D. | JSC/Bogard, D. D. | 43-Chem Engr |
| | HQ-P/Pohly, J. G. | |

NGR 19-011-016 **Grambling State University** **2240**
Distribution of extra-ionic semimetallic environments by nuclear quadrupole resonance techniques

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/14/72-12/31/76 | FY76: \$18,827 | TOTAL: \$68,364 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Murty, A. N. | MSFC/Kroes, R. L. | 13-Physics |
| | MSFC/Kent, M. I. | |

NSG 8034 **Grambling State University** **2241**
Study of ultra low frequency oscillations at the synchronous orbit using data from ATS-6, SMS-1, and SMS-2

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 12/01/75-06/30/77 | FY76: \$29,680 | TOTAL: \$29,680 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cummings, W. D. | MSFC/Chappell, C. R. | 13-Physics |

NAS 5-20883 **Louisiana State University - Baton Rouge** **2242**
High energy cosmic ray ionization spectrometer computer simulations

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/19/74-06/30/76 | FY76: | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Huggett, R. W. | GSFC/Ormes, J. F. | 13-Physics |

NAS 8-30380 **Louisiana State University - Baton Rouge** **2243**
Development of a three-dimensional time-dependent flow field model

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/14/74-03/08/76 | FY76: | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Farmer, R. C. | MSFC/Hamby, H. G. | 13-Physics |
| Waldrop, W. R. | MSFC/Wilson, H. B. | |

NAS 8-30620 **Louisiana State University - Baton Rouge** **2244**
Investigation of land-use spectral signatures

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/25/74-03/24/75 | FY76: | TOTAL: \$9,173 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Maples, D. | MSFC/Paludan, C. T. | 39-Env Sci, NEC |
| | MSFC/Espy, P. N. | |

NAS13-38 **Louisiana State University - Baton Rouge** **2245**
Study of feeding value in water hyacinths

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/22/76-07/25/77 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wolverton, V. C. | NSTL/Rusoff, L. L. | 59-Life Sci, NEC |

NGL 19-001-097 **Louisiana State University - Baton Rouge** **2246**
Interdisciplinary program in earth resource and environmental research

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 05/17/71-08/01/74 | FY76: | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Whitehurst, C. A. | HQ-P/Redding, E. R. | 39-Env Sci, NEC |
| | MSFC/Kent, M. I. | |

NASA'S UNIVERSITY PROGRAM LOUISIANA (Continued)

NGL 19-001-105 Louisiana State University - Baton Rouge 2247
Interpretation of remote sensing data in the Bayou la Fourche region of south Louisiana

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/06/72-05/31/79 | FY76: \$75,000 | TOTAL: \$425,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Whitehurst, C. A. | HQ-P/Vitale, J. A. | 39-Env Sci, NEC |

NGR 19-001-012 Louisiana State University - Baton Rouge 2248
Cosmic ray investigations utilizing an emulsion chamber-calorimeter combination

| Period | Obligations | |
|-------------------|-------------------------|--------------------|
| 03/10/66-08/31/75 | FY76: | TOTAL: \$1,127,957 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Huggett, R. W. | HQ-SA/Opp, A. G. | 11-Astronomy |
| | HQ-ST/Schmerling, E. R. | |

NAS 9-9317 Louisiana State University - Shreveport 2249
Study of modulatory effects of solar wind in galactic cosmic rays

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/07/69-06/30/77 | FY76: | TOTAL: \$30,160 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Moss, T. A. | JSC/Giuli, R. T. | 11-Astronomy |

NGR 19-005-003 Southern University - Baton Rouge 2250
Experimental and theoretical study on nonequilibrium and unsteady phenomena in supersonic gas dynamics

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/20/71-09/01/76 | FY76: | TOTAL: \$75,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liu, K. H. | MSFC/Kent, M. I. | 19-Phys Sci, NEC |
| Butler, J. L. | | |

NGR 19-005-006 Southern University - Baton Rouge 2251
Research in the many-particle theory of nuclear systems with application to neutron star matter

| Period | Obligations | |
|--------------------|----------------------|-----------------|
| 10/17/72-01/31/77 | FY76: \$16,172 | TOTAL: \$70,975 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chakkalakal, D. A. | JPL/Estabrook, F. B. | 11-Astronomy |
| Yang, C. H. | | |

NGT 19-005-750 Southern University - Baton Rouge 2252
Training of undergraduate students in sciences and engineering

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/75-05/30/77 | FY76: \$14,000 | TOTAL: \$28,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Burrell, M. Q. | HQ-P/Pohly, J. G. | 49-Engr, NEC |
| | HQ-U/Jenkins, H. G. | |

NSG 2041 Southern University - Baton Rouge 2253
Analytical model for the dynamic stress and deformation studies in the left ventricle

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 08/19/74-04/30/77 | FY76: \$25,557 | TOTAL: \$49,301 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ray, G. | ARC/Sandler, H. | 59-Life Sci, NEC |

NSG 8016 Southern University - Baton Rouge 2254
Radiative property investigation

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/25/74-06/25/75 | FY76: | TOTAL: \$18,424 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Scott, R. L., Jr. | MSFC/Trenkle, J. J. | 13-Physics |

NSG 8025 Southern University - Baton Rouge 2255
Inhibitor analysis for a solar heating and cooling system

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 01/02/75-02/01/77 | FY76: \$23,982 | TOTAL: \$47,072 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Frederick, D. K. | MSFC/Williamson, J. G. | 46-Mech Engr |
| Shen, C. N. | MSFC/Kent, M. I. | |
| Razunis, Y. E. | | |

NSG 8028 Southern University - Baton Rouge 2256
Theoretical model for a single particle echo signature using light scattering theory

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 10/15/75-10/14/76 | FY76: \$20,393 | TOTAL: \$20,393 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Anderson, J. A. | MSFC/Trenkle, J. J. | 45-Elec Engr |
| | MSFC/Kent, M. I. | |

NSG 8029 Southern University - Baton Rouge 2257
Determination of particle size using measurements of scatter

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 10/15/75-10/14/76 | FY76: \$19,900 | TOTAL: \$19,900 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Scott, R. L., Jr. | MSFC/Trenkle, J. J. | 46-Mech Engr |
| | MSFC/Kent, M. I. | |

NSG 9030 Southern University - Baton Rouge 2258
State vector update filter for autoland portion of the shuttle landing

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 09/01/75-08/31/76 | FY76: | TOTAL: \$22,100 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Grewal, G. S. | JSC/Echelkamp, R. E. | 45-Elec Engr |

NCA 2-800402 Tulane University 2259
Localization and histo-chemical characterization of the central emetic apparatus related to motion sickness

| Period | Obligations | |
|-------------------|--------------------|---------------|
| 01/01/74-12/31/74 | FY76: | TOTAL: \$610 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brizze, K. R. | ARC/Zill, L. P. | 51-Biology |

NCA 2-800501 Tulane University 2260
Studies on localization and histochemical characterization of central emetic apparatus related to motion sickness

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/01/75-12/31/75 | FY76: \$2,000 | TOTAL: \$11,992 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brizze, K. R. | ARC/Zill, L. P. | 53-Other Medical |

NASA'S UNIVERSITY PROGRAM
LOUISIANA (Continued)

NGL 19-002-027 **Tulane University** **2261**
Electronic transport properties of molecular crystals
Period *Obligations*
02/17/69-01/31/76 **FY76:** **TOTAL: \$122,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hermann, A. M. HQ-RW/Gangler, J. J. 13-Physics
JPL/Rembaum, A.

NGR 19-002-030 **Tulane University** **2262**
Determination of the intensity of turbulence in liquid rocket combustion chamber
Period *Obligations*
12/31/69-12/31/75 **FY76:** **TOTAL: \$137,780**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'Hara, J. C. LERC/Priem, R. J. 41-Aero Engr

NGR 19-002-038 **Tulane University** **2263**
Geologic mapping of a quadrangle on Mars based on Mariner 9 photographs
Period *Obligations*
02/04/72-06/30/75 **FY76:** **TOTAL: \$21,992**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meyer, J. D. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NSG 2139 **Tulane University** **2264**
Localization and ultrastructural histochemical characterization of the central emetic apparatus related to motion sickness and emetic drugs in the squirrel monkey and dog
Period *Obligations*
03/01/76-02/28/77 **FY76: \$39,902** **TOTAL: \$39,902**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brizzee, K. R. ARC/Mehler, W. R. 53-Other Medical
Yates, R. D. ARC/Daunton, N. G.

NSG 3049 **University of Southwestern Louisiana** **2265**
Population inversion in charge exchange collisions
Period *Obligations*
03/01/75-02/28/77 **FY76: \$6,372** **TOTAL: \$11,454**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Matese, J. J. LERC/Chubb, D. L. 13-Physics
LERC/Michels, C. J.

NGR 19-007-004 **Xavier University - Louisiana** **2266**
The correlation of the 24 hour pattern of rat plasma and adrenal corticosterone with the diurnal variations of certain tissue constituents involved in carbohydrate metabolism
Period *Obligations*
05/07/73-06/30/77 **FY76:** **TOTAL: \$104,438**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ashman, P. U. ARC/Winget, C. M. 51-Biology
ARC/Danellis, J. V.

NSG 1218 **Xavier University - Louisiana** **2267**
The effective transmission function and distortion of kinetic energy distributions by the 127 cylindrical analyzer
Period *Obligations*
08/01/75-06/30/76 **FY76: \$12,238** **TOTAL: \$12,238**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ioup, J. W. LARC/Outlaw, R. A. 13-Physics

MARYLAND

NGR 21-027-001 **Bowie State College** **2268**
Research in cosmic ray physics
Period *Obligations*
09/01/69-04/30/77 **FY76: \$11,287** **TOTAL: \$96,148**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tornabene, H. S. GSFC/Boldt, E. A. 11-Astronomy

NGR 21-027-004 **Bowie State College** **2269**
Research in numerical integration
Period *Obligations*
05/25/71-07/31/77 **FY76:** **TOTAL: \$47,371**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Srivastava, S. GSFC/Fuchs, A. J. 21-Mathematics
GSFC/Velez, C. E.

NGR 21-027-010 **Bowie State College** **2270**
Holographic gratings for spectrographic applications study of aberrations
Period *Obligations*
05/14/73-06/30/77 **FY76: \$16,302** **TOTAL: \$61,381**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bhatia, M. S. GSFC/Caruso, A. J. 13-Physics
GSFC/Osantowski, J. F.

NGT 21-027-012 **Bowie State College** **2271**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-05/31/77 **FY76: \$22,867** **TOTAL: \$87,692**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kirksey, C. H. GSFC/Mundy, J. R. 21-Mathematics
GSFC/Puleo, D. L.

NSG 5009 **Bowie State College** **2272**
Characterization of the physico-chemical properties of polymeric materials for aerospace flights
Period *Obligations*
07/01/74-08/31/76 **FY76:** **TOTAL: \$37,083**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rock, M. GSFC/Gross, F. C. 12-Chemistry
Simms, B. R.

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NSG 1096 **Chesapeake College** **2273**
Investigation of the radiation induced by a laser beam incident on sea water
Period *Obligations*
09/01/74-08/31/76 FY76: \$29,452 TOTAL: \$54,140
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Paul, F. W. LARC/Exton, R. J. 33-Oceanography
Zimmerman, A. V. LERC/Houghton, W. M.

NGR 21-122-001 **Coppin State College** **2274**
Computer graphics system for the display of pulse height analysis data
Period *Obligations*
12/01/73-08/31/75 FY76: TOTAL: \$11,958
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sommerfeldt, D. E. GSFC/Muckel, G. A. 21-Mathematics

NSG 5051 **Coppin State College** **2275**
Research on the failure mechanism and other factors leading to reduction of cycle life in aerospace nickel-cadmium cells
Period *Obligations*
05/01/75-04/30/77 FY76: \$32,900 TOTAL: \$45,743
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McDermott, P. P. GSFC/Webster, W. H., Jr. 12-Chemistry
GSFC/Ford, F. E.

NSG 5052 **Coppin State College** **2276**
Research on the penalty method as an effective technique for solving constrained minimization problems
Period *Obligations*
05/01/75-04/30/76 FY76: TOTAL: \$9,335
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pinsky, S. S. GSFC/Rosenzweig, M. B. 21-Mathematics

NGT 21-123-001 **Goucher College** **2277**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-05/31/77 FY76: \$7,000 TOTAL: \$21,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Billet, J. HQ-P/Pohly, J. G. 99-Multi-Discip
HQ-U/Jenkins, H. G.

NAS 5-11415 **Johns Hopkins University** **2278**
Atmosphere Explorer photoelectron and energetic particle experiment
Period *Obligations*
08/15/74-11/15/77 FY76: \$131,827 TOTAL: \$962,327
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Doering, D. M. GSFC/Corrigan, J. P. 31-Atmos Sci

NAS 5-23316 **Johns Hopkins University** **2279**
Design study of ultraviolet properties for large space telescope
Period *Obligations*
09/24/73-06/30/77 FY76: \$24,000 TOTAL: \$103,607
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. GSFC/Bogges, A. 11-Astronomy

NAS 6-2706 **Johns Hopkins University** **2280**
Services and materials necessary to perform theoretical studies in ocean dynamics
Period *Obligations*
01/16/76-01/15/77 FY76: \$85,976 TOTAL: \$85,976
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Phillips, O. M. WFC/Stamley, H. R. 33-Oceanography
WFC/Huang, N.

NAS 8-31413 **Johns Hopkins University** **2281**
Feasibility of multiple detector focal plane array UV spectrometer for the AMPS laboratory
Period *Obligations*
03/31/75-11/30/75 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feldman, P. D. MSFC/Roberts, W. T. 31-Atmos Sci
Moos, H. W. MSFC/Chappell, C. R.

NGR 21-001-001 **Johns Hopkins University** **2282**
Rocket and laboratory experiments and analysis on ultraviolet spectra of upper atmosphere
Period *Obligations*
08/01/61-10/16/76 FY76: \$251,900 TOTAL: \$3,853,863
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. GSFC/Bissell, E. E., Jr. 11-Astronomy
Feldman, P. D. HQ-SL/Rosendhal, J. D.

NGR 21-001-111 **Johns Hopkins University** **2283**
Small group performance & effects of contingency management in a programmed environment
Period *Obligations*
03/31/72-10/14/76 FY76: \$105,000 TOTAL: \$645,255
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brady, J. V. ARC/Patton, R. M. 62-Social Aspects

NGR 21-001-115 **Johns Hopkins University** **2284**
Investigation of high resolution spectrometer for large space telescope
Period *Obligations*
07/01/75-02/26/76 FY76: \$2,310 TOTAL: \$12,777
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fastie, W. G. GSFC/Sobieski, S. 11-Astronomy
GSFC/Meesse, K. J.

NSG 1265 **Johns Hopkins University** **2285**
Investigation of transient fault phenomena in digital systems
Period *Obligations*
12/01/75-11/31/76 FY76: \$49,050 TOTAL: \$49,050
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Masson, G. M. LARC/Bavuso, S. J. 45-Elec Engr
LARC/Migneault, G. E.

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NSG 5029 **Johns Hopkins University** **2286**
Search for X-rays from the central region of the cygnus loop nebula
Period *Obligations*
10/01/74-09/30/75 **FY76:** **TOTAL: \$9,923**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henry, R. C. GSFC/Kupperian, J. E. 11-Astronomy

NSG 5065 **Johns Hopkins University** **2287**
Photometric measurements of cometary gas production rates
Period *Obligations*
05/01/75-07/31/76 **FY76:** **TOTAL: \$10,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Feldman, P. D. GSFC/Maran, S. P. 11-Astronomy
GSFC/Hobbs, R. W.

NSG 5067 **Johns Hopkins University** **2288**
Investigation of stellar chromospheres and the interstellar medium with the Copernicus satellite
Period *Obligations*
07/01/75-10/31/76 **FY76:** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moos, H. W. GSFC/Kupperian, J. E. 11-Astronomy

NSG 5078 **Johns Hopkins University** **2289**
Investigation of stellar coronae with the Copernicus satellite
Period *Obligations*
09/01/75-08/31/76 **FY76: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henry, R. C. GSFC/Kupperian, J. E. 11-Astronomy

NSG 5090 **Johns Hopkins University** **2290**
Research in earth sciences
Period *Obligations*
01/01/76-12/31/76 **FY76: \$72,875** **TOTAL: \$72,875**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Marsh, B. D. GSFC/Coates, R. J. 32-Geological Sci
Phillips, O. M. GSFC/Mead, G. D.

NSG 5119 **Johns Hopkins University** **2291**
Local interstellar hydrogen observations and search for chromospheres and coronal in a& f stars a&f
Period *Obligations*
07/01/76-06/30/77 **FY76: \$15,000** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henry, R. C. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7055 **Johns Hopkins University** **2292**
Satellite data analysis
Period *Obligations*
01/01/74-12/31/76 **FY76: \$99,000** **TOTAL: \$159,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krimigis, S. M. HQ-ST/Taylor, W. W. 13-Physics
HQ-ST/Schmerling, E. R.

NAS 5-23558 **Morgan State University** **2293**
Investigation, identification, analysis and interpretation of new possibilities in transfer technology
Period *Obligations*
06/01/76-06/01/77 **FY76: \$21,136** **TOTAL: \$21,136**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Collagan, R. B. GSFC/Friedman, D. S. 49-Engr, NEC

NGR 21-025-011 **Morgan State University** **2294**
Evaluative research of audio modules
Period *Obligations*
01/01/74-01/31/75 **FY76:** **TOTAL: \$26,135**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Collagan, R. B. GSFC/Shorter, C. W. 99-Multi-Discip

NGT 21-025-006 **Morgan State University** **2295**
Summer faculty fellowship program
Period *Obligations*
04/16/71-03/31/77 **FY76: \$33,635** **TOTAL: \$204,416**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Proctor, N. K. GSFC/Mundy, J. R. 19-Phys Sci, NEC

NSG 5074 **Morgan State University** **2296**
Research calibration of photographic and spectrographic films
Period *Obligations*
10/01/75-03/31/77 **FY76: \$24,250** **TOTAL: \$24,250**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hammond, E. C., Jr. GSFC/Baker, G. R. 11-Astronomy
GSFC/Stober, A. K.

NGR 21-002-010 **University of Maryland - Baltimore** **2297**
Theoretical & experimental research on gravitational radiation
Period *Obligations*
06/12/63-05/14/77 **FY76: \$26,664** **TOTAL: \$965,887**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Misner, C. W. HQ-SA/Roman, N. G. 11-Astronomy
HQ-SA/Rosendhal, J. D.

NSG 2098 **University of Maryland - Baltimore** **2298**
Alterations in the mammalian vestibular system associated with changes in gravitational field
Period *Obligations*
08/01/75-07/31/76 **FY76: \$39,983** **TOTAL: \$39,983**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Grenell, R. G. ARC/Sharp, J. C. 53-Other Medical

NAS 5-11063 **University of Maryland - College Park** **2299**
Experiment to analyze ions and electrons for IMP-H & J
Period *Obligations*
06/11/68-10/31/79 **FY76: \$71,000** **TOTAL: \$1,732,392**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Davis, M. A. 13-Physics

NASA'S UNIVERSITY PROGRAM

MARYLAND (Continued)

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|--|---------------------------|--|-------------|
| NAS 5-20062 | | University of Maryland - College Park | 2300 |
| Low energy charged particles experiment for International Sun-Earth Explorer mother and heliocentric spacecraft | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 05/02/74-07/31/80 | FY76: \$79,000 | TOTAL: \$369,671 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Gloeckler, G. | GSFC/Davis, M. A. | 13-Physics | |

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|---|--|----------------------|
| NAS 5-20834 | University of Maryland - College Park | 2301 |
| Investigation of the origin of organic molecules in the atmosphere of Jupiter | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/09/75-10/31/76 | FY76: \$9,000 | TOTAL: \$18,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ponnamperuma, C. A. | GSFC/Stief, L. J. | 12-Chemistry |
| | GSFC/Donn, B. D. | |

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|---------------------------------|---------------------------|---------------------------------------|------|
| NAS 5-22537 | | University of Maryland - College Park | 2302 |
| Lidar design requirements study | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 08/08/75-02/15/77 | FY76: \$19,686 | TOTAL: \$19,686 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Wilkerson, T. W. | GSFC/Spencer, N. W. | 31-Atmos Sci | |
| | GSFC/Hudson, R. D. | | |

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|--|-----------------------------|--|-------------|
| NAS 5-22581 | | University of Maryland - College Park | 2303 |
| Study of systems implementation languages | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 09/24/75-09/23/76 | FY76: \$20,939 | TOTAL: \$20,939 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Basili, V. R. | GSFC/Des Jardins, R. | 21-Mathematics | |

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|---|---------------------------|--|-------------|
| NAS 5-22835 | | University of Maryland - College Park | 2304 |
| Workshop meetings for the electrodynamic Explorer preliminary science mission study | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 10/16/75-08/31/76 | FY76: \$40,824 | TOTAL: \$40,824 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Messenger, C. J. | GSFC/Findlay, J. A. | 31-Atmos Sci | |

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|--|--|----------------------|
| NAS 5-22878 | University of Maryland - College Park | 2305 |
| Study of analysis and modeling of distributed computing | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/09/76-01/08/77 | FY76: \$55,073 | TOTAL: \$55,073 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Agrawala, A. K. | GSFC/Barsky, J. | 21-Mathematics |
| | GSFC/Larsen, R. L. | |

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| NAS 5-23237 University of Maryland - College Park 2306 Feasibility study for infrared interferometer, spectrometer, & radiometer for Mariner/Jupiter 1977 launch | |
| <i>Period</i> | <i>Obligations</i> |
| 05/09/73-06/30/77 | FY76: \$10,000 TOTAL: \$32,900 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer CASE Category</i> |
| Ponnamperuma, C. A. | GSFC/Conrath, B. J. 13-Physics |
| | GSFC/Hanel, R. A. |

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|---|---------------------|---------------------------------------|------|
| NAS 5-23457 | | University of Maryland - College Park | 2307 |
| Study of application of a field neutron generator | | | |
| Period | Obligations | | |
| 04/06/76-04/06/77 | FY76: \$11,152 | TOTAL: \$11,152 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Sommer, S. E. | GSFC/Trombka, J. I. | 39-Env Sci, NEC | |

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|--|-----------------------------|--|-------------|
| NAS 9-5886 | | University of Maryland - College Park | 2308 |
| Lunar gravimeter experiment for ALSEP | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 04/26/66-12/31/74 | FY76: | TOTAL: \$2,266,168 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Weber, J. | JSC/Eichelman, W. F. | 19-Phys Sci, NEC | |

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|--|---------------------------|--|-------------|
| NCA 2-420403 | | University of Maryland - College Park | 2309 |
| Intermolecular recognition between nucleotides and amino acids | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 06/01/74-11/30/75 | FY76: | TOTAL: \$2,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Ponnampuruma, C. A. | ARC/Zill, L. P. | 12-Chemistry | |

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|---|--|----------------------|
| NCA 2-420501 | University of Maryland - College Park | 2310 |
| Joint meeting on the chemical evolution of giant planets | | |
| <i>Period</i> | <i>Obligations</i> | |
| 08/01/74-12/31/74 | FY76: | TOTAL: \$7,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ponnampremura, C. A. | ARC/Zill, L. P. | 11-Astronomy |

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|--|---------------------------|---------------------------------------|------|
| NCA 2-420701 | | University of Maryland - College Park | 2311 |
| Spectroscopic data for atmospheric assay | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 07/01/76-12/31/76 | FY76: \$9,711 | TOTAL: \$9,711 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Wilkerson, T. B. | ARC/Boese, R. W. | 31-Atmos Sci | |

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|---|--|-----------------------|
| NCA 5-1 | University of Maryland - College Park | 2312 |
| Study of digital image processing of astronomical scenes | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/03/74-05/15/75 | FY76: | TOTAL: \$8,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rosenfeld, A. | GSFC/Fischel, D. | 11-Astronomy |
| | GSFC/Klinglesmith, D. A. | |

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|---|---------------------------|---------------------------------------|----------------------|
| NCA 5-3 | | University of Maryland - College Park | 2313 |
| Study of OSO-7 data of the solar corona | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 10/01/74-09/30/75 | FY76: \$5,640 | | TOTAL: \$5,640 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | | <i>CASE Category</i> |
| Smith, E. | GSFC/Neupert, W. M. | | 31-Atmos Sci |

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|--|---------------------------|--|----------------------|
| NCA 5-4 | | University of Maryland - College Park | 2314 |
| Ion-induced X-ray cross-sections research | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 09/01/74-09/01/75 | FY76: \$7,500 | | TOTAL: \$7,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | | <i>CASE Category</i> |
| Martin, F. W. | GSFC/Kastner, S. O. | | 31-Atmos Sci |

NASA'S UNIVERSITY PROGRAM **MARYLAND (Continued)**

NCA 5-6 University of Maryland - College Park 2315
 Analysis of a satellite X-ray detector

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/01/75-08/23/75 | FY76: | TOTAL: \$6,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rose, W. | GSFC/Dennis, B. R. | 19-Phys Sci, NEC |

NCA 5-7 University of Maryland - College Park 2316
 Determining the observing program and interpreting the life-time data of a satellite X-ray detector

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 06/01/75-08/23/75 | FY76: | TOTAL: \$2,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Westerhaut, G. | GSFC/Crannel, C. J. | 19-Phys Sci, NEC |

NCA 5-10 University of Maryland - College Park 2317
 DIGITOL image processing

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 09/03/75-05/15/76 | FY76: \$9,000 | TOTAL: \$9,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rosenfeld, A. | GSFC/Fischel, D. | 11-Astronomy |

NCA 5-11 University of Maryland - College Park 2318
 Development and testing a very efficient two dimensional fast Fourier transform algorithm

| Period | Obligations | |
|-------------------|--------------------------|----------------|
| 08/15/75-09/15/76 | FY76: \$7,432 | TOTAL: \$7,432 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Harger, R. | GSFC/Fischel, D. | 11-Astronomy |
| | GSFC/Klinglesmith, D. A. | |

NGL 21-002-005 University of Maryland - College Park 2319
 Theoretical research on dynamics of astrophysical plasmas including studies of structure of plasma shock waves in solar corona and their possible radio emission

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 02/01/62-06/30/78 | FY76: \$60,000 | TOTAL: \$850,493 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wu, C. S. | HQ-ST/Cauffman, D. P. | 19-Phys Sci, NEC |
| | HQ-ST/Schmerling, E. R. | |

NGL 21-002-033 University of Maryland - College Park 2320
 Theoretical and experimental studies in space sciences, including consideration of rocket probe and satellites techniques

| Period | Obligations | |
|-------------------|----------------------|--------------------|
| 06/02/64-06/30/79 | FY76: \$21,000 | TOTAL: \$2,623,213 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Smith, E. V. | GSFC/Northrop, T. G. | 31-Atmos Sci |
| Kerr, F. J. | GSFC/Pieper, G. F. | |

NGL 21-002-367 University of Maryland - College Park 2321
 Multifrequency mapping of the radio sun

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/01/72-06/31/75 | FY76: | TOTAL: \$202,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kundu, M. R. | GSFC/Fainberg, J. | 11-Astronomy |
| Erickson, W. C. | | |

NGR 21-002-002 University of Maryland - College Park 2322
 Theoretical studies in atmospheric and space physics

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/01/60-07/31/76 | FY76: \$25,000 | TOTAL: \$687,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Opik, E. J. | HQ SL/Brunk, W. F. | 11-Astronomy |
| Laster, H. E. | | |

NGR 21-002-007 University of Maryland - College Park 2323
 Research on measurement of atomic transition probabilities of high temperature cases

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 03/20/63-04/30/76 | FY76: \$58 | TOTAL: \$318,082 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wilkerson, T. D. | HQ-ST/Timothy, A. F. | 11-Astronomy |
| Miller, M. H. | | |

NGR 21-002-066 University of Maryland - College Park 2324
 A study of primary cosmic ray electrons, utilizing balloon-borne experiments

| Period | Obligations | |
|--------------------|--------------------|------------------|
| 11/19/65-05/31/76 | FY76: \$30,000 | TOTAL: \$735,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Earl, J. A. | HQ-SA/Opp, A. G. | 11-Astronomy |
| O'Gallagher, J. J. | | |

NGR 21-002-073 University of Maryland - College Park 2325
 Experimental and theoretical investigation of plasma radiation

| Period | Obligations | |
|-------------------|------------------------|------------------|
| 04/26/66-02/28/77 | FY76: \$75,000 | TOTAL: \$697,005 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Griem, H. R. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |
| | HQ-SA/Roman, N. G. | |

NGR 21-002-096 University of Maryland - College Park 2326
 Research in atmospheric physics

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/21/66-12/31/76 | FY76: \$85,000 | TOTAL: \$631,414 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Matthews, D. L. | GSFC/Brace, L. H. | 31-Atmos Sci |
| | GSFC/Gagnon, B. D. | |

NGR 21-002-199 University of Maryland - College Park 2327
 Research in solar radio astronomy at short wavelengths

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 04/11/69-09/30/76 | FY76: \$60,000 | TOTAL: \$223,656 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kundu, M. R. | HQ-SL/Brunk, W. E. | 13-Physics |
| | HQ-ST/Timothy, A. F. | |

NGR 21-002-224 University of Maryland - College Park 2328
 Research on the measurement of the charge and isotopic composition on the primary cosmic rays

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 07/31/69-02/28/79 | FY76: \$57,500 | TOTAL: \$228,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gloeckler, G. | HQ-SA/Sofia, S. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

REPRODUCIBILITY OF THE
ORIGINAL PAGE(S)

NGR 21-002-270 University of Maryland - College Park 2329
Research in mechanical theorem proving
Period *Obligations*
05/18/70-09/30/76 FY76: \$24,962 TOTAL: \$113,367
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Minker, J. HQ-RE/Pontious, C. E. 21-Mathematics
JPL/Whitney, W. M.

NGR 21-002-291 University of Maryland - College Park 2330
Studies of charged particles in natural and laboratory environments
Period *Obligations*
01/28/71-09/30/76 FY76: \$34,289 TOTAL: \$159,408
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Coplan, M. A. GSFC/Ogilvie, K. W. 13-Physics

NGR 21-002-316 University of Maryland - College Park 2331
Research program in charged particle detector technology
Period *Obligations*
07/01/71-09/30/76 FY76: \$276,000 TOTAL: \$1,073,717
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gloeckler, G. GSFC/Teegarden, B. J. 13-Physics
O'Gallagher, J. J.

NGR 21-002-317 University of Maryland - College Park 2332
Chemical studies of the origin of life
Period *Obligations*
08/18/71-06/30/76 FY76: \$90,000 TOTAL: \$482,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ponnamperuma, C. A. HQ-SB/Young, R. S. 12-Chemistry

NGR 21-002-344 University of Maryland - College Park 2333
Studies on thermophysical properties in critical region of fluids
Period *Obligations*
02/16/72-03/01/77 FY76: \$12,000 TOTAL: \$54,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sengers, J. V. LERC/Simoneau, R. J. 13-Physics

NGR 21-002-368 University of Maryland - College Park 2334
Geochemistry of lunar & meteoritic materials
Period *Obligations*
06/01/72-06/30/77 FY76: \$76,848 TOTAL: \$325,165
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weidner, J. R. GSFC/Philpotts, J. A. 32-Geological Sci

NGR 21-002-386 University of Maryland - College Park 2335
Rocket investigation of Relativistic Electron Precipitation (REP) events
Period *Obligations*
04/13/73-06/30/74 FY76: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Matthews, D. L. HQ-ST/Cauffman, D. P. 11-Astronomy

NGR 21-002-390 University of Maryland - College Park 2336
Geophysical causes and measurement accuracies related to earth rotation
Period *Obligations*
12/11/72-09/10/75 FY76: TOTAL: \$12,669
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Currie, D. G. GSFC/Smith, D. E. 19-Phys Sci, NEC

NGR 21-002-399 University of Maryland - College Park 2337
Urbanization and geologic processes in the Chesapeake Bay watershed
Period *Obligations*
03/01/73-10/31/76 FY76: \$23,136 TOTAL: \$66,311
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ragan, R. M. GSFC/Rango, A. 32-Geological Sci
GSFC/Salomonson, V. V.

NGR 21-002-400 University of Maryland - College Park 2338
Preliminary experiments with a split sphere high pressure apparatus
Period *Obligations*
04/17/73-12/31/76 FY76: \$63,000 TOTAL: \$173,641
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spain, I. L. LERC/Coles, W. D. 13-Physics
Paauwe, J. LERC/Brown, G. V.
Elton, S. K.

NGR 21-002-408 University of Maryland - College Park 2339
Investigations into nuclear plasmas and radiant energy systems
Period *Obligations*
06/30/73-04/30/75 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tidman, D. A. HQ-RR/Thom, K. 21-Mathematics

NGR 21-002-433 University of Maryland - College Park 2340
Radar optimization for sea surface and geodetic measurements
Period *Obligations*
01/01/74-12/31/74 FY76: TOTAL: \$11,567
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harger, R. O. GSFC/Marini, J. W. 33-Oceanography

NGR 21-002-444 University of Maryland - College Park 2341
A wide-band optical very long baseline amplitude interferometer for precise determination of the polar position
Period *Obligations*
04/01/74-10/31/76 FY76: \$8,000 TOTAL: \$79,128
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Currie, D. G. GSFC/Buften, J. L. 13-Physics

NGT 21-002-254 University of Maryland - College Park 2342
Summer faculty fellowship program in research for 24 faculty members
Period *Obligations*
12/23/69-03/31/77 FY76: \$107,810 TOTAL: \$530,190
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Emad, F. P. HQ-P/Carter, C. H. 49-Engr, NEC

NASA'S UNIVERSITY PROGRAM MARYLAND (Continued)

NSG 1031 **University of Maryland - College Park** **2343**
Kinetics investigation of several reactions involving chlorine-containing compounds

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 05/01/74-09/15/76 | FY76: \$29,119 | TOTAL: \$129,628 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Davis, D. D. | LARC/Pellett, G. L. | 12-Chemistry |
| Fischer, S. | LARC/Wagner, H. S. | |
| Vishankara, R. A. | | |

NSG 5017 **University of Maryland - College Park** **2349**
Resource identification studies on urban watersheds using the Anacostia river basin as an example

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 07/15/74-01/31/77 | FY76: \$28,365 | TOTAL: \$36,607 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ragan, R. M. | GSFC/Salomonsen, V. V. | 32-Geological Sci |
| | GSFC/Rango, A. | |

NSG 1075 **University of Maryland - College Park** **2344**
Airborne in situ atmosphere measurements of the OH free radical via a tunable ultraviolet dye laser

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/74-10/31/76 | FY76: \$34,500 | TOTAL: \$73,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Davis, D. D. | LARC/Hoell, J. M. | 39-Env Sci, NEC |
| Moriarity, A. | LARC/Young, D. C. | |

NSG 5035 **University of Maryland - College Park** **2350**
Astronomy and geophysics experiment using very long base interferometry

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 12/01/74-11/30/76 | FY76: \$26,000 | TOTAL: \$36,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Richard, J. P. | GSFC/Clark, T. A. | 11-Astronomy |

NSG 1156 **University of Maryland - College Park** **2345**
Tunable lasers for water vapor measurements and other lidar applications

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/15/75-05/31/76 | FY76: \$8,000 | TOTAL: \$33,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gammon, R. W. | LARC/Northam, G. B. | 31-Atmos Sci |
| Wilkerson, T. D. | LARC/Browell, E. V. | |
| McIlrath, T. J. | | |

NSG 5042 **University of Maryland - College Park** **2351**
Study of CO2 waveguide laser life problem

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 01/12/75-12/31/76 | FY76: \$50,039 | TOTAL: \$80,061 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hochuli, U. E. | GSFC/Degnan, J. J. | 49-Engr, NEC |
| | GSFC/McElroy, J. H. | |

NSG 1193 **University of Maryland - College Park** **2346**
Evaluation of alternative methods for maintenance and dissemination of engineering software

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 06/01/75-05/31/77 | FY76: \$26,415 | TOTAL: \$26,415 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schaeffer, H. G. | LARC/McComb, H. G., Jr. | 41-Aero Engr |

NSG 5047 **University of Maryland - College Park** **2352**
Study of the geochemistry and dispersal of radionuclides and trace metals in Chesapeake Bay sediments

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 02/01/75-02/29/76 | FY76: \$8,509 | TOTAL: \$8,509 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sommer, S. E. | GSFC/Cressy, P. J. | 32-Geological Sci |
| Adler, I. | GSFC/Trombka, J. I. | |

NSG 2109 **University of Maryland - College Park** **2347**
Colloquium on the geology, chemistry and paleo-biology of the early preCambrian

| Period | Obligations | |
|---------------------|---------------------|------------------|
| 10/01/75-09/30/76 | FY76: \$5,000 | TOTAL: \$5,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ponnamperuma, C. A. | ARC/MacElroy, R. D. | 59-Life Sci, NEC |

NSG 5048 **University of Maryland - College Park** **2353**
Efficient detection, analysis and classification of lightning radiation fields

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/01/75-12/31/76 | FY76: \$1,200 | TOTAL: \$20,169 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Harger, R. O. | GSFC/Levine, D. M. | 45-Elec Engr |
| Tretter, S. A. | | |

NSG 3001 **University of Maryland - College Park** **2348**
Mechanical properties and the electronic structure of transition metal alloys

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 03/01/74-02/28/77 | FY76: \$22,000 | TOTAL: \$82,888 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Drew, H. D. | LERC/Stephens, J. R. | 47-Materials Engr |
| Arsenault, R. J. | | |

NSG 5059 **University of Maryland - College Park** **2354**
Line blocking measurements in the ultra-violet spectra of Sirius, Procyon and Canopus

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 03/01/75-06/30/76 | FY76: \$13,200 | TOTAL: \$13,200 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bell, R. A. | GSFC/Kupperian, J. E. | 11-Astronomy |

NASA'S UNIVERSITY PROGRAM **MARYLAND (Continued)**

NSG 5062 **University of Maryland - College Park** **2355**
Research to achieve centimeter laser ranging accuracy to earth satellites for earth physics applications

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/01/75-12/31/76 | FY76: \$50,000 | TOTAL: \$215,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Alley, C. O. | GSFC/Fitzmaurice, M. W. | 99-Multi-Discip |

Wilkerson, T. D.
Ilrath, M. C.

NSG 5083 **University of Maryland - College Park** **2356**
Multiphase flows for lunar and terrestrial volcanoes

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/75-09/30/76 | FY76: \$12,000 | TOTAL: \$12,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Pai, S. I. | GSFC/O'Keefe, J. A. | 19-Phys Sci, NEC |

NSG 5084 **University of Maryland - College Park** **2357**
Investigations with satellite data

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/75-09/30/76 | FY76: \$65,497 | TOTAL: \$65,497 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Thompson, O. E. | GSFC/Theon, J. S. | 31-Atmos Sci |
| Fritz, S. | GSFC/Arking, A. | |

NSG 5094 **University of Maryland - College Park** **2358**
Analysis of lunar data

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/76-01/31/77 | FY76: \$45,904 | TOTAL: \$45,904 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Adler, I. | GSFC/Philpotts, J. A. | 32-Geological Sci |

NSG 5112 **University of Maryland - College Park** **2359**
Magnetogeochemistry of solid solar systems bodies

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/76-04/30/77 | FY76: \$26,962 | TOTAL: \$26,962 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Weidner, J. R. | GSFC/Wasilewski, P. J. | 19-Phys Sci, NEC |

NSG 5121 **University of Maryland - College Park** **2360**
Geochemistry of lunar materials

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/76-06/30/77 | FY76: \$79,061 | TOTAL: \$79,061 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Weidner, J. R. | GSFC/Nava, D. F. | 32-Geological Sci |
| | GSFC/Philpotts, J. A. | |

NSG 6001 **University of Maryland - College Park** **2361**
Resource and environmental management of the Chesapeake Bay region

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 12/15/74-09/15/75 | FY76: | TOTAL: \$29,686 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Harmon, D. M. | WFC/Alfonsi, P. J. | 39-Env Sci, NEC |
| Fuller, K. B. | | |

NSG 6010 **University of Maryland - College Park** **2362**
An in-depth investigation to assess and quantify the economic implications of management oriented remote sensing activities

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/76-04/30/77 | FY76: \$29,961 | TOTAL: \$29,961 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Harmon, D. M. | WFC/Alfonsi, P. J. | 72-Economics |
| Fuller, K. B. | | |

NSG 7017 **University of Maryland - College Park** **2363**
Magnetic remanence associated with the shock wave impact induced gamma alpha transformation in iron

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/74-08/31/75 | FY76: | TOTAL: \$22,886 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Wasilewski, P. | HQ-SM/Alexander, D. E. | 32-Geological Sci |
| Weidner, J. R. | | |

NSG 7046 **University of Maryland - College Park** **2364**
Studies of the Apollo 15 and 16 orbital X-ray data

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/74-05/31/77 | FY76: \$21,200 | TOTAL: \$80,161 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Adler, I. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7196 **University of Maryland - College Park** **2365**
Research and development of gravitational experiments for spacecraft

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/76-02/28/77 | FY76: \$44,246 | TOTAL: \$44,246 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Weber, J. | HQ-RR/Schwenk, F. C. | 13-Physics |
| Richard, J. P. | JPL/Mason, P. V. | |

NAS 6-2595 **University of Maryland - Eastern Shore** **2366**
Library services

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/30/74-09/30/76 | FY76: \$58,333 | TOTAL: \$113,352 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | WFC/Floyd, J. C. | 99-Multi-Discip |
| | WFC/Denton, S. R. | |

NGR 21-119-001 **University of Maryland - Eastern Shore** **2367**
The fabrication of semiconductor injection lasers with output to match specific atomic transitions

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/12/72-08/31/76 | FY76: | TOTAL: \$48,563 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Singh, G. | GSFC/Fitzmaurice, M. W. | 19-Phys Sci, NEC |

NASA'S UNIVERSITY PROGRAM
MARYLAND (Continued)

NGR 21-119-002 University of Maryland - Eastern Shore 2368
 A computer technique to vector aircraft
Period Obligations
 04/27/72-08/31/75 FY76: TOTAL: \$29,159
Prin. Invest. NASA Tech. Officer CASE Category
 Nagarajan, N. WFC/Raine, A. W. 41-Aero Engr

NGR 21-119-003 University of Maryland - Eastern Shore 2369
 High power pulsed laser beams and their atmospheric propagation limitations
Period Obligations
 08/18/72-02/28/76 FY76: TOTAL: \$46,254
Prin. Invest. NASA Tech. Officer CASE Category
 Singh, G. WFC/Kim, H. H. 13-Physics
 WFC/Oberholtzer, J. D.

NSG 6006 University of Maryland - Eastern Shore 2370
 Studies of microwave radiation as a tool in soil sterilization against major diseases and pests of agricultural crops
Period Obligations
 03/01/76-10/31/76 FY76: \$29,700 TOTAL: \$29,700
Prin. Invest. NASA Tech. Officer CASE Category
 Wutoh, J. G. WFC/Oberholtzer, J. D. 99-Multi-Discip

MASSACHUSETTS

NAS 5-22994 Boston College 2371
 Management case studies
Period Obligations
 03/09/76-04/30/76 FY76: \$30,210 TOTAL: \$30,210
Prin. Invest. NASA Tech. Officer CASE Category
 Kelley, A. J. GSFC/Morse, S. 72-Economics
 Murphy, D. C. HQ-KC/Guitinan, J. P.
 Sher, F. I.

NSG 7190 Boston College 2372
 Coordinated analysis of auroral data and particles data from ATS-5 and ATS-6
Period Obligations
 12/01/75-11/31/76 FY76: \$30,000 TOTAL: \$30,000
Prin. Invest. NASA Tech. Officer CASE Category
 Eather, R. H. HQ-ST/Cauffman, D. P. 13-Physics
 HQ-ST/Schmerling, E. R.

NGR 22-004-018 Boston University 2373
 Ultrasonic measurement of heart volume
Period Obligations
 03/01/70-12/31/75 FY76: TOTAL: \$65,511
Prin. Invest. NASA Tech. Officer CASE Category
 Fulton, G. P. HQ-SB/Larson, C. A. 59-Life Sci, NEC
 Berman, H. J.

NGR 22-004-025 Boston University 2374
 Microbial contributions to the precambrian earth
Period Obligations
 12/15/70-09/30/76 FY76: \$34,000 TOTAL: \$122,353
Prin. Invest. NASA Tech. Officer CASE Category
 Margulis, L. HQ-SB/Young, R. S. 32-Geological Sci

NGR 22-004-030 Boston University 2375
 Compressible unsteady potential aerodynamic flow around lifting bodies having arbitrary shapes & motions
Period Obligations
 12/08/71-12/31/76 FY76: \$75,321 TOTAL: \$268,429
Prin. Invest. NASA Tech. Officer CASE Category
 Morino, L. LARC/Yates, E. C., Jr. 41-Aero Engr

NSG 5055 Boston University 2376
 Investigation of the sharp-lined Tau Hercules star
Period Obligations
 05/01/75-08/31/76 FY76: TOTAL: \$8,671
Prin. Invest. NASA Tech. Officer CASE Category
 Adelman, S. J. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7063 Boston University 2377
 Programmed health testing in a working population
Period Obligations
 05/29/74-09/01/76 FY76: TOTAL: \$6,683
Prin. Invest. NASA Tech. Officer CASE Category
 Hershberg, P. I. HQ-QG/Arnoldi, L. B. 52-Clinical Med

NSG 7098 Brandeis University 2378
 Studies of solar atmospheric dynamics
Period Obligations
 01/01/75-09/01/76 FY76: TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
 Stein, R. F. HQ-ST/Timothy, A. F. 11-Astronomy

NAS 1-10492 Harvard University 2379
 Participation in science planning for Viking 1975 missions in area of entry science
Period Obligations
 03/25/71-03/31/77 FY76: \$53,507 TOTAL: \$176,707
Prin. Invest. NASA Tech. Officer CASE Category
 McElroy, M. B. LARC/Williams, T. S., Jr. 31-Atmos Sci
 LARC/Glenny, W. R.

NAS 2-9127 Harvard University 2380
 Interdisciplinary scientist, Pioneer Venus program
Period Obligations
 02/23/76-10/01/76 FY76: \$11,014 TOTAL: \$11,014
Prin. Invest. NASA Tech. Officer CASE Category
 Goody, R. M. ARC/Hall, C. F. 11-Astronomy
 ARC/Porter, D. L.

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NAS 5-3949 Harvard University 2381
Study and experiment for a high resolution ultraviolet telescope and spectrometer system

| Period | Obligations | |
|-------------------|-------------------------------------|---------------|
| 01/28/65-06/30/76 | FY76: \$952,879 TOTAL: \$37,803,486 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goldberg, L. | MSFC/Unavailable | 11-Astronomy |

NAS 5-20764 Harvard University 2382
Ultraviolet investigations of stellar X-ray sources

| Period | Obligations | |
|-------------------|-----------------------|---------------|
| 01/06/75-01/06/76 | FY76: TOTAL: \$8,860 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dupree, A. K. | GSFC/Underhill, A. B. | 11-Astronomy |

NAS 5-22343 Harvard University 2383
Spectroheliometer for solar maximum measurements

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 05/14/75-11/07/75 | FY76: \$43,300 TOTAL: \$93,300 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reeves, E. M. | GSFC/Donley, J. L. | 11-Astronomy |
| Timothy, J. G. | | |

NAS 5-22374 Harvard University 2384
Solar soft X-ray telescope study

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 05/14/75-06/30/76 | FY76: \$24,090 TOTAL: \$52,651 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Withbroe, G. L. | GSFC/White, A. F., Jr. | 11-Astronomy |

NAS 5-23199 Harvard University 2385
Atmosphere Explorer theoretical investigations

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 03/19/73-08/19/77 | FY76: \$58,000 TOTAL: \$133,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McElroy, M. B. | GSFC/Findlay, J. A. | 31-Atmos Sci |

NAS 5-23371 Harvard University 2386
Investigation of stellar X-ray sources

| Period | Obligations | |
|-------------------|------------------------------|---------------|
| 04/08/76-06/07/77 | FY76: \$9,624 TOTAL: \$9,624 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dupree, A. K. | GSFC/Underhill, A. B. | 11-Astronomy |

NAS 5-23494 Harvard University 2387
X-ray ultraviolet spectroheliometer experiment for synchronous meteorological satellite - Study effort

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 05/19/76-09/30/76 | FY76: \$145,000 TOTAL: \$145,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reeves, E. M. | GSFC/Donley, J. L. | 31-Atmos Sci |

NAS 8-31374 Harvard University 2388
Scientific data reduction and analysis activities ATM experiment S-054

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 01/01/75-06/30/76 | FY76: \$254,999 TOTAL: \$473,963 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vaiana, G. S. | MSFC/Snoddy, W. C. | 13-Physics |
| | MSFC/Fields, S. A. | |

NAS 8-31549 Harvard University 2389
Development of a microchannel plate detector

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 09/04/75-08/31/76 | FY76: \$99,907 TOTAL: \$99,907 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Noyes, R. W. | MSFC/Bordelon, C. S. | 13-Physics |
| Reeves, E. M. | MSFC/Huggins, C. T. | |

NASW 2938 Harvard University 2390
Development and test of photoncounting microchannel plate detector arrays

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 05/14/76-06/30/76 | FY76: \$109,419 TOTAL: \$109,419 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Noyes, R. W. | HQ-SA/Rosendhal, J. D. | 49-Engr, NEC |

NGL 22-007-006 Harvard University 2391
Theoretical & experimental studies on ultraviolet solar physics

| Period | Obligations | |
|-------------------|------------------------------------|---------------|
| 07/10/63-12/31/76 | FY76: \$255,000 TOTAL: \$4,221,398 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Parkinson, W. H. | HQ-ST/Timothy, A. F. | 13-Physics |

NGL 22-007-069 Harvard University 2392
Infrared absorption spectrophotometry of organic extractives from precambrian sediments

| Period | Obligations | |
|-------------------|---------------------------------|-------------------|
| 05/29/66-05/31/77 | FY76: \$25,393 TOTAL: \$307,399 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Barghoorn, E. S. | HQ-SB/Young, R. S. | 32-Geological Sci |

NGL 22-007-117 Harvard University 2393
Investigation of the behavior of ultrashort light pulses of picosecond duration in optical media

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 04/22/68-01/31/78 | FY76: \$20,000 TOTAL: \$285,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bloembergen, N. | GSFC/McAvoy, N. | 13-Physics |
| | GSFC/Fitzmaurice, M. W. | |

NGL 22-007-228 Harvard University 2394
Theoretical investigation of multiphase in Jupiter interior and possible relationship to behavior of outer atmospheric layers

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 12/15/71-09/30/78 | FY76: \$80,308 TOTAL: \$395,987 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goody, R. M. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

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NGL 22-007-247 **Harvard University** **2395**
Lunar sample analysis
Period *Obligations*
06/30/72-01/31/79 **FY76: \$123,975** **TOTAL: \$416,248**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hays, J. F. JSC/Harris, J. W. 12-Chemistry

NGR 22-007-202 **Harvard University** **2396**
Investigations in the far ultraviolet solar spectrum
Period *Obligations*
11/05/70-06/30/76 **FY76: \$40,000** **TOTAL: \$945,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parkinson, W. H. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 22-007-242 **Harvard University** **2397**
Theoretical researches into planetary atmospheres and their influence upon surface features
Period *Obligations*
06/13/72-06/14/74 **FY76:** **TOTAL: \$27,672**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goody, R. M. HQ-SL/Fellows, R. F. 31-Atmos Sci

NGR 22-007-256 **Harvard University** **2398**
Bone metabolism and hormones
Period *Obligations*
03/28/73-12/31/76 **FY76: \$20,000** **TOTAL: \$89,132**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tashjian, A. H., Jr. ARC/Young, D. R. 52-Clinical Med

NGR 22-007-257 **Harvard University** **2399**
Spectra of solar radio bursts
Period *Obligations*
04/11/73-12/31/76 **FY76:** **TOTAL: \$110,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Maxwell, A. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 22-007-267 **Harvard University** **2400**
Trace elements of hydrogen and nitrogen in earth atmosphere
Period *Obligations*
09/19/73-12/31/74 **FY76:** **TOTAL: \$32,811**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. HQ-SL/Fellows, R. F. 31-Atmos Sci

NGR 22-007-269 **Harvard University** **2401**
Theoretical research in planetary physics
Period *Obligations*
09/01/73-08/31/76 **FY76: \$48,408** **TOTAL: \$108,408**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cameron, A. G. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NGR 22-007-270 **Harvard University** **2402**
The operation of a balloon-borne 40-inch telescope for far infrared astronomy
Period *Obligations*
11/05/73-09/30/76 **FY76: \$100,000** **TOTAL: \$219,868**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fazio, G. G. HQ-SA/Boggess, N. W. 11-Astronomy
Kelinmann, D. E. HQ-SA/Roman, N. G.
Noyes, R. W.

NGR 22-007-272 **Harvard University** **2403**
Theoretical studies in space astronomy
Period *Obligations*
09/01/73-08/31/76 **FY76: \$32,000** **TOTAL: \$82,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cameron, A. G. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

NGR 22-007-275 **Harvard University** **2404**
Waves in the equatorial stratosphere
Period *Obligations*
01/01/74-08/31/75 **FY76:** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lindzen, R. S. GSFC/Theon, J. S. 31-Atmos Sci

NGR 22-007-285 **Harvard University** **2405**
Stellar chromospheres and coronas
Period *Obligations*
05/01/74-10/31/75 **FY76:** **TOTAL: \$8,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Noyes, R. W. GSFC/Kupperian, J. E. 11-Astronomy

NSG 2031 **Harvard University** **2406**
Chemistry and dynamics of trace stratospheric gases
Period *Obligations*
07/01/74-06/30/76 **FY76: \$31,360** **TOTAL: \$125,365**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElroy, M. B. ARC/Poppoff, I. G. 31-Atmos Sci
Wolfsy, S. C. ARC/Whitten, R. C.

NSG 2144 **Harvard University** **2407**
Regulation of protein balance in muscle
Period *Obligations*
04/01/76-03/31/77 **FY76: \$26,568** **TOTAL: \$26,568**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goldberg, A. L. ARC/Ellis, S. 51-Biology
Murakami, K.
Linger, E. T.

NSG 5099 **Harvard University** **2408**
Research of chromospheres and coronas of late-type stars
Period *Obligations*
03/01/76-02/28/77 **FY76: \$12,000** **TOTAL: \$12,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dupree, A. K. GSFC/Kupperian, J. E. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
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NSG 7018 Harvard University 2409
 Transition and coronal line profiles in the solar extreme ultraviolet measurements
Period Obligations
 03/01/74-06/30/76 FY76: \$50,000 TOTAL: \$77,000
Prin. Invest. NASA Tech. Officer CASE Category
 Noyes, R. W. HQ-ST/Timothy, A. F. 11-Astronomy

NSG 7095 Harvard University 2410
 Reflection spectra of sodium doped ammonia ice
Period Obligations
 10/25/74-08/31/76 FY76: \$35,380 TOTAL: \$70,685
Prin. Invest. NASA Tech. Officer CASE Category
 Pipkin, F. M. HQ-SL/Fellows, R. F. 31-Atmos Sci
 HQ-SL/Brunk, W. E.

NSG 7175 Harvard University 2411
 Lyman alpha and white light coronagraph rocket instrument
Period Obligations
 07/01/75-06/30/76 FY76: \$250,000 TOTAL: \$250,000
Prin. Invest. NASA Tech. Officer CASE Category
 Reeves, E. M. HQ-ST/Timothy, A. F. 13-Physics

NSG 7176 Harvard University 2412
 Participation in NASA CORE funding
Period Obligations
 11/01/75-10/31/78 FY76: \$400,000 TOTAL: \$400,000
Prin. Invest. NASA Tech. Officer CASE Category
 Field, G. B. HQ-P/Carter, C. H. 11-Astronomy
 McElroy, M. B.

NSG 7191 Harvard University 2413
 Origin and history of the moon
Period Obligations
 01/01/76-12/31/76 FY76: \$16,023 TOTAL: \$16,023
Prin. Invest. NASA Tech. Officer CASE Category
 Cameron, A. G. HQ-SL/Williams, R. J. 32-Geological Sci
 Ward, W. R. HQ-SL/Flinn, E. A.

NAS 1-9684 Massachusetts Institute of Technology 2414
 Participation in the science planning for the Viking 1975 missions in the area of molecular analysis
Period Obligations
 05/01/70-03/31/77 FY76: \$267,098 TOTAL: \$862,567
Prin. Invest. NASA Tech. Officer CASE Category
 Biemann, K. LARC/Williams, T. S., Jr. 39-Env Sci, NEC
 LARC/Glenny, W. R.

NAS 1-9691 Massachusetts Institute of Technology 2415
 Participation in the science planning for the Viking 1975 missions in the area of biology
Period Obligations
 06/15/70-03/31/77 FY76: \$10,924 TOTAL: \$62,113
Prin. Invest. NASA Tech. Officer CASE Category
 Rich, A. LARC/Williams, T. S., Jr. 51-Biology
 LARC/Glenny, W. R.

NAS 1-9702 Massachusetts Institute of Technology 2416
 Participation in the science planning for the Viking 1975 missions in the area of radio science
Period Obligations
 05/20/70-03/31/77 FY76: \$94,080 TOTAL: \$200,580
Prin. Invest. NASA Tech. Officer CASE Category
 Shapiro, I. I. LARC/Williams, T. S., Jr. 99-Multi-Discip
 LARC/Glenny, W. R.

NAS 2-7262 Massachusetts Institute of Technology 2417
 Study of gust response & alleviation for propeller in cruising flight
Period Obligations
 11/06/72-12/31/76 FY76: \$99,942 TOTAL: \$239,293
Prin. Invest. NASA Tech. Officer CASE Category
 Ham, N. D. ARC/Rabbott, J. P., Jr. 41-Aero Engr
 Deyst, J. J., Jr. ARC/Johnson, W. R.
 Tong, P.

NAS 2-7620 Massachusetts Institute of Technology 2418
 Cost study of noise reduction in tilt rotor aircraft
Period Obligations
 06/01/73-03/31/76 FY76: TOTAL: \$140,620
Prin. Invest. NASA Tech. Officer CASE Category
 Faulkner, H. B. ARC/Rabbott, J. P., Jr. 41-Aero Engr
 Simpson, R. W. ARC/McCloud, J. L.

NAS 2-8977 Massachusetts Institute of Technology 2419
 Radar studies on Pioneer/Venus orbiter mission
Period Obligations
 08/15/75-06/30/76 FY76: \$9,800 TOTAL: \$9,800
Prin. Invest. NASA Tech. Officer CASE Category
 Pettengill, G. H. ARC/Hall, C. F. 11-Astronomy
 ARC/Keller, C. H.

NAS 2-9132 Massachusetts Institute of Technology 2420
 Experiment participation, Pioneer/Venus program
Period Obligations
 02/09/76-10/01/76 FY76: \$11,115 TOTAL: \$11,115
Prin. Invest. NASA Tech. Officer CASE Category
 Shapiro, I. I. ARC/Hall, C. F. 11-Astronomy
 ARC/Porter, D. L.

NAS 2-9151 Massachusetts Institute of Technology 2421
 Differential long base interferometry experiment participation
Period Obligations
 04/13/76-07/31/76 FY76: \$28,300 TOTAL: \$28,300
Prin. Invest. NASA Tech. Officer CASE Category
 Counselman, C. C., III ARC/Raymos, R. 11-Astronomy

NAS 3-17534 Massachusetts Institute of Technology 2422
 Development and test of a polymeric early warning fire alarm device
Period Obligations
 09/17/73-09/16/74 FY76: TOTAL: \$56,032
Prin. Invest. NASA Tech. Officer CASE Category
 Senturia, S. D. LERC/Hacker, P. T. 19-Phys Sci, NEC

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NAS 5-11062 **Massachusetts Institute of Technology** **2423**
IMP H&J plasma experiment

| Period | Obligations |
|-----------------------------|---|
| 05/17/68-11/01/76 | FY76: TOTAL: \$2,039,000 |
| Prin. Invest. Bridge, H. S. | NASA Tech. Officer GSFC/Davis, M. A. CASE Category 13-Physics |

NAS 5-23624 **Massachusetts Institute of Technology** **2430**
Participation in transient source survey study

| Period | Obligations |
|----------------------------|---|
| 06/24/76-11/09/76 | FY76: \$13,000 TOTAL: \$13,000 |
| Prin. Invest. Bradt, H. V. | NASA Tech. Officer GSFC/Weinreb, M. B. CASE Category 11-Astronomy |

NAS 5-11082 **Massachusetts Institute of Technology** **2424**
Studies and design for a rotating wheel experiment to provide a two color survey of the positions and time variations of cosmic X-ray sources

| Period | Obligations |
|----------------------------|---|
| 06/30/67-06/30/75 | FY76: TOTAL: \$2,090,427 |
| Prin. Invest. Clark, G. W. | NASA Tech. Officer GSFC/Ostaf, W. A. CASE Category 19-Phys Sci, NEC |

NAS 8-27972 **Massachusetts Institute of Technology** **2431**
Design, development, & operations of the AXR-2 integrated modulation collimator experiment under the HEAO program

| Period | Obligations |
|----------------------------|---|
| 06/23/72-04/15/78 | FY76: \$250,689 TOTAL: \$549,909 |
| Prin. Invest. Bradt, H. V. | NASA Tech. Officer MSFC/Bodie, W. G. CASE Category 11-Astronomy |
| | MSFC/Gustin, R. A. |

NAS 5-11450 **Massachusetts Institute of Technology** **2425**
An experiment to perform X-ray astronomy on the SAS-C spacecraft

| Period | Obligations |
|----------------------------|--|
| 06/16/71-06/30/77 | FY76: \$924,311 TOTAL: \$9,007,472 |
| Prin. Invest. Clark, G. W. | NASA Tech. Officer GSFC/Piterski, N. J. CASE Category 11-Astronomy |

NAS 8-27975 **Massachusetts Institute of Technology** **2432**
Design and development of the AGR-5 high energy X-ray experiment under the HEAO program

| Period | Obligations |
|----------------------------|--|
| 06/23/72-04/15/78 | FY76: \$129,000 TOTAL: \$1,062,672 |
| Prin. Invest. Lewin, W. H. | NASA Tech. Officer MSFC/Jordan, W. E. CASE Category 11-Astronomy |
| | MSFC/Jones, J. B. |

NAS 5-21980 **Massachusetts Institute of Technology** **2426**
Nimbus F scanning microwave spectrometer data reduction and analysis

| Period | Obligations |
|------------------------------|---|
| 01/25/74-02/28/77 | FY76: \$78,816 TOTAL: \$493,816 |
| Prin. Invest. Staelin, D. H. | NASA Tech. Officer GSFC/Ratliff, R. B. CASE Category 31-Atmos Sci |

NAS 8-30301 **Massachusetts Institute of Technology** **2433**
Capability and limitations of relativistic gravity measurements using radio astronomy methods

| Period | Obligations |
|------------------------|---|
| 12/01/73-06/30/75 | FY76: TOTAL: \$6,000 |
| Prin. Invest. Boyd, P. | NASA Tech. Officer MSFC/Decker, R. CASE Category 13-Physics |
| | Counselman, C. C., III MSFC/Hale, D. P. |

NAS 5-22485 **Massachusetts Institute of Technology** **2427**
Microwave spectrometer for meteorological observations from satellites

| Period | Obligations |
|-------------------------|--|
| 06/26/75-09/30/76 | FY76: TOTAL: \$20,000 |
| Prin. Invest. Shive, J. | NASA Tech. Officer GSFC/Staelin, D. CASE Category 19-Phys Sci, NEC |

NAS 8-30537 **Massachusetts Institute of Technology** **2434**
Solidification (crystal growth) in the absence of gravitational forces

| Period | Obligations |
|----------------------------|---|
| 12/03/73-11/30/76 | FY76: \$50,000 TOTAL: \$200,000 |
| Prin. Invest. Gatos, H. C. | NASA Tech. Officer MSFC/Davidson, M. C. CASE Category 47-Materials Engr |
| | Whitt, A. F. MSFC/Zwiener, J. W. |

NAS 5-22915 **Massachusetts Institute of Technology** **2428**
Nimbus G support for solar backscattered ultraviolet and total ozone mapping system

| Period | Obligations |
|---------------------------|---|
| 01/28/76-01/28/79 | FY76: \$18,783 TOTAL: \$18,783 |
| Prin. Invest. Cunnold, S. | NASA Tech. Officer GSFC/Heath, D. F. CASE Category 31-Atmos Sci |

NAS 8-30576 **Massachusetts Institute of Technology** **2435**
Quantitative determination of zero-effects on electronic materials processing

| Period | Obligations |
|---------------------------|---|
| 12/10/73-09/30/76 | FY76: \$32,500 TOTAL: \$117,500 |
| Prin. Invest. Witt, A. F. | NASA Tech. Officer MSFC/Adams, W. R. CASE Category 19-Phys Sci, NEC |
| | MSFC/Boese, A. |

NAS 5-22929 **Massachusetts Institute of Technology** **2429**
Nimbus-G scanning multichannel microwave radiometer sensor

| Period | Obligations |
|------------------------------|---|
| 01/28/76-12/28/79 | FY76: \$10,000 TOTAL: \$10,000 |
| Prin. Invest. Staelin, D. H. | NASA Tech. Officer GSFC/Gloersen, P. CASE Category 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)

NAS 8-30752 **Massachusetts Institute of Technology** **2436**
 Design, development and operations of the HEAO Mission B
 telescope experiment

| Period | Obligations |
|-------------------|---|
| 06/01/74-12/31/79 | FY76: \$694,000 TOTAL: \$1,437,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Clark, G. W. | MSFC/Manning, H. S. 11-Astronomy |
| Bradt, H. V. | MSFC/Power, J. A. |
| Cabizares, C. R. | |

NAS 8-31149 **Massachusetts Institute of Technology** **2437**
 Earth simulation experiment for cloud physics laboratory on
 spacelab or shuttle

| Period | Obligations |
|-------------------|---|
| 12/03/74-05/30/76 | FY76: TOTAL: \$24,960 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Hart, J. E. | MSFC/Fichti, G. H. 32-Geological Sci |
| | MSFC/Cliff, W. C. |

NAS 8-31350 **Massachusetts Institute of Technology** **2438**
 Uniform dispersions of crystallization processing

| Period | Obligations |
|-------------------|--|
| 07/01/75-07/31/77 | FY76: \$180,000 TOTAL: \$236,120 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Uhlmann, D. R. | MSFC/Chassay, R. P. 47-Materials Engr |

NAS 8-31552 **Massachusetts Institute of Technology** **2439**
 Contact and coalescence of viscous and viscoelastic bodies

| Period | Obligations |
|-------------------|---|
| 11/01/75-08/01/77 | FY76: \$68,000 TOTAL: \$68,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Hopper, R. W. | MSFC/Reeves, F. A. 47-Materials Engr |
| | MSFC/Snyder, R. S. |

NAS 9-12334 **Massachusetts Institute of Technology** **2440**
 Apollo passive seismic experiment

| Period | Obligations |
|-------------------|--|
| 01/07/72-01/31/77 | FY76: \$110,470 TOTAL: \$425,638 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Toksoz, M. N. | JSC/Eichelman, W. F. 31-Atmos Sci |

NAS 9-12485 **Massachusetts Institute of Technology** **2441**
 Mechanisms of deterioration of nutrients

| Period | Obligations |
|-------------------|---|
| 03/17/72-04/01/77 | FY76: \$50,000 TOTAL: \$275,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Flink, J. M. | JSC/Heidelberg, N. D. 53-Other Medical |

NASW 2787 **Massachusetts Institute of Technology** **2442**
 Study in the area of international networking aspects and
 implications of high data rates

| Period | Obligations |
|-------------------|---------------------------------------|
| 05/02/75-05/31/76 | FY76: TOTAL: \$40,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Unavailable | HQ-EC/Freibaum, J. 45-Elec Engr |

NGL 22-009-003 **Massachusetts Institute of Technology** **2443**
 Mechanisms of alloy strengthening by fine particle dispersions
 emphasizing reduction of nonrefractory oxides, stability of metals
 oxide systems & solid solution in metal-metal oxide alloys

| Period | Obligations |
|-------------------|---|
| 11/15/70-01/14/77 | FY76: TOTAL: \$1,013,770 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Grant, N. J. | LERC/Quatinetz, M. 47-Materials Engr |

NGL 22-009-013 **Massachusetts Institute of Technology** **2444**
 Research on problems of communication in space environment

| Period | Obligations |
|-------------------|--|
| 12/27/62-10/31/78 | FY76: \$70,000 TOTAL: \$1,346,700 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kennedy, R. S. | HQ-RE/Alsberg, H. 45-Elec Engr |
| | GSFC/McAvoy, N. |

NGL 22-009-015 **Massachusetts Institute of Technology** **2445**
 Theoretical and experimental investigations of interplanetary
 medium and in gamma ray astronomy

| Period | Obligations |
|-------------------|---|
| 01/01/63-12/31/77 | FY76: TOTAL: \$4,159,498 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Bridge, H. S. | HQ-ST/Schmerling, E. R. 13-Physics |
| | HQ-SA/Opp, A. G. |

NGL 22-009-016 **Massachusetts Institute of Technology** **2446**
 Electromagnetic investigations of planetary and solar atmospheres
 and the lunar surface

| Period | Obligations |
|-------------------|---|
| 05/01/63-04/30/75 | FY76: TOTAL: \$1,391,075 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Barrett, A. H. | HQ-SL/Brunk, W. E. 32-Geological Sci |

NGL 22-009-019 **Massachusetts Institute of Technology** **2447**
 Multidisciplinary research in space-related Bayou la Fourche
 region of south Louisiana

| Period | Obligations |
|-------------------|---|
| 09/27/63-06/30/75 | FY76: TOTAL: \$8,051,886 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Harrington, J. V. | HQ-P/Carter, C. H. 99-Multi-Discip |

NGL 22-009-124 **Massachusetts Institute of Technology** **2448**
 Control optimization stabilization and computation of algorithms
 for space applications

| Period | Obligations |
|-------------------|---------------------------------------|
| 03/30/66-08/31/78 | FY76: \$70,000 TOTAL: \$670,289 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Athans, M. | ARC/Doolin, B. F. 49-Engr, NEC |
| Willsky, A. S. | ARC/Erzberger, H. |
| Mitter, S. K. | |

NASA'S UNIVERSITY PROGRAM MASSACHUSETTS (Continued)

NGL 22-009-125 Massachusetts Institute of Technology **2449**
Studies on the relationship between crystalline structure and superconductivity

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/05/66-03/31/77 | FY76: | TOTAL: \$279,624 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gatos, H. C. | MSFC/Dalins, I. | 13-Physics |
| | MSFC/Stern, H. E. | |

NGL 22-009-187 Massachusetts Institute of Technology **2450**
Lunar geophysics, as related to the Apollo applications program

| Period | Obligations | |
|------------------------|-----------------------|-------------------|
| 09/02/66-02/28/78 | FY76: | TOTAL: \$638,782 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Press, F. | HQ-SM/Kosofsky, L. J. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |
| Burns, R. G. | | |
| Counselman, C. C., III | | |

NGL 22-009-308 Massachusetts Institute of Technology **2451**
Maturation and development of mechanisms of orientation and postural control

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 12/01/67-08/31/78 | FY76: \$30,000 | TOTAL: \$756,646 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Teuber, H. L. | ARC/Daunton, N. G. | 69-Psych, NEC |
| Held, R. | | |

NGL 22-009-383 Massachusetts Institute of Technology **2452**
Research in propulsion and power generation

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 01/16/69-08/31/78 | FY76: \$70,000 | TOTAL: \$850,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kerrebrock, J. L. | LERC/McNally, W. D. | 41-Aero Engr |
| Oliver, D. A. | | |
| McCune, J. E. | | |

NGL 22-009-521 Massachusetts Institute of Technology **2453**
Composition and structure of planetary atmospheres

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 08/10/70-06/30/78 | FY76: \$82,538 | TOTAL: \$444,449 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lewis, J. S. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

NGL 22-009-548 Massachusetts Institute of Technology **2454**
Flight control systems research

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 08/17/70-02/28/77 | FY76: \$30,000 | TOTAL: \$312,818 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Whitaker, H. D. | DFRC/Szalai, K. J. | 41-Aero Engr |

NGL 22-009-638 Massachusetts Institute of Technology **2455**
Research in space science

| Period | Obligations | |
|----------------------|--------------------|--------------------|
| 03/03/72-02/28/79 | FY76: \$200,000 | TOTAL: \$1,000,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCarthy, J. F., Jr. | HQ-P/Carter, C. H. | 99-Multi-Discip |

NGL 22-009-640 Massachusetts Institute of Technology **2456**
Joint university research program on future air transportation technological needs

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 11/16/71-10/31/78 | FY76: \$70,000 | TOTAL: \$319,999 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Simpson, R. W. | LARC/Reid, H. J., Jr. | 41-Aero Engr |
| Hollister, W. M. | LARC/Mace, W. D. | |

NGR 22-009-005 Massachusetts Institute of Technology **2457**
Detection & identification of organic matter by mass spectrometry

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 12/01/61-06/30/76 | FY76: \$75,000 | TOTAL: \$865,762 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Biemann, K. | HQ-SB/Young, R. S. | 51-Biology |

NGR 22-009-102 Massachusetts Institute of Technology **2458**
Investigation of the effect of space environment on replica gratings

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/28/66-12/01/77 | FY76: | TOTAL: \$193,638 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Biemann, K. | HQ-SB/Young, R. S. | 42-Astro Engr |

NGR 22-009-277 Massachusetts Institute of Technology **2459**
The prebiotic synthesis of polynucleotides and polynucleotide-directed polypeptides

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 12/01/67-06/30/76 | FY76: \$40,000 | TOTAL: \$429,802 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rich, A. | HQ-SB/Young, R. S. | 12-Chemistry |

NGR 22-009-339 Massachusetts Institute of Technology **2460**
Investigation of containment/control of fragments from bursting turbine rotors

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 06/14/68-11/01/77 | FY76: \$79,918 | TOTAL: \$549,915 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Witmer, E. A. | LERC/Siewert, R. D. | 41-Aero Engr |

NGR 22-009-350 Massachusetts Institute of Technology **2461**
Spectral reflectance of planetary surfaces

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 03/25/69-08/31/74 | FY76: | TOTAL: \$255,700 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCord, T. B. | HQ-SM/Bryson, R. P. | 32-Geological Sci |
| | HQ-SM/Allenby, R. J. | |

NGR 22-009-378 Massachusetts Institute of Technology **2462**
Study of pollutants from jet aircraft

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/14/69-09/30/76 | FY76: \$109,701 | TOTAL: \$513,088 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Heywood, J. B. | LERC/Mularz, E. J. | 43-Chem Engr |
| Chigier, N. A. | LERC/Jones, R. E. | |

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MASSACHUSETTS (Continued)

NGR 22-009-473 **Massachusetts Institute of Technology** **2463**
 Planetary astronomy

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 06/10/70-12/31/76 | FY76: \$76,500 | TOTAL: \$499,100 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCord, T. B. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NGR 22-009-526 **Massachusetts Institute of Technology** **2464**
 Astronomy in the region between 1 mm to 0.1 mm wavelengths

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 09/22/70-09/30/76 | FY76: \$55,000 | TOTAL: \$297,700 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Weiss, R. | HQ-SA/Boggess, N. W. | 11-Astronomy |
| Muehlner, D. J. | HQ-SA/Roman, N. G. | |

NGR 22-009-540 **Massachusetts Institute of Technology** **2465**
 Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/08/71-01/31/77 | FY76: \$60,000 | TOTAL: \$431,325 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Simmons, M. G. | JSC/Harris, J. W. | 13-Physics |

NGR 22-009-551 **Massachusetts Institute of Technology** **2466**
 Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/11/71-01/31/77 | FY76: \$51,000 | TOTAL: \$297,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Burns, R. G. | JSC/Harris, J. W. | 12-Chemistry |

NGR 22-009-583 **Massachusetts Institute of Technology** **2467**
 Spectroscopy of the asteroids

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 10/26/71-09/30/76 | FY76: \$30,000 | TOTAL: \$130,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCord, T. B. | HQ-SL/Fellows, R. F. | 11-Astronomy |
| | HQ-SL/Donn, B. D. | |

NGR 22-009-627 **Massachusetts Institute of Technology** **2468**
 Control of serotonin-containing neurons in the brain, by plasma tryptophan

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 08/04/71-10/31/76 | FY76: \$68,503 | TOTAL: \$311,503 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wurtman, R. J. | ARC/Winget, C. M. | 53-Other Medical |
| Fernstrom, J. | | |
| Danellis, J. V. | | |
| Lynch, H. J. | | |

NGR 22-009-646 **Massachusetts Institute of Technology** **2469**
 Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 06/16/71-01/31/77 | FY76: \$74,600 | TOTAL: \$355,096 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Uhlmann, D. R. | JSC/Harris, J. W. | 47-Materials Engr |

NGR 22-009-672 **Massachusetts Institute of Technology** **2470**
 Ground-based radar study of the moon and planets

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 03/06/72-10/31/76 | FY76: | TOTAL: \$175,600 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pettengill, G. H. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NGR 22-009-701 **Massachusetts Institute of Technology** **2471**
 Integration of visual and motion requirements for flight simulation and ride quality investigation

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 05/18/72-11/30/76 | FY76: | TOTAL: \$328,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Young, L. R. | LARC/Queijo, M. J. | 41-Aero Engr |
| | LARC/Miller, G. K., Jr. | |

NGR 22-009-718 **Massachusetts Institute of Technology** **2472**
 Spectroscopic observations of the moon, asteroids and planets from the NASA 91.5 cm airborne telescope

| Period | Obligations | |
|-------------------|---------------------------|-----------------|
| 03/01/73-07/31/76 | FY76: | TOTAL: \$60,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCord, T. B. | ARC/Cameron, R. M. | 11-Astronomy |
| Kleinmann, S. G. | ARC/Gillespie, C. M., Jr. | |

NGR 22-009-723 **Massachusetts Institute of Technology** **2473**
 Bosch process and evaluation of Bosch carbon as a sorbent

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 09/19/72-09/30/76 | FY76: \$25,085 | TOTAL: \$94,556 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reid, R. C. | ARC/Quattrone, P. D. | 12-Chemistry |
| Modell, M. | | |

NGR 22-009-727 **Massachusetts Institute of Technology** **2474**
 Study in numerical modeling of atmospheric phenomena

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/01/73-12/31/79 | FY76: \$90,000 | TOTAL: \$325,863 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stone, P. H. | GSFC/Halem, M. | 31-Atmos Sci |
| Charney, J. G. | | |

NGR 22-009-730 **Massachusetts Institute of Technology** **2475**
 X-ray astronomy experiments from sounding rockets

| Period | Obligations | |
|-------------------|--------------------------|------------------|
| 03/22/72-08/31/76 | FY76: \$175,000 | TOTAL: \$560,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bradt, H. V. | GSFC/Bissell, E. E., Jr. | 11-Astronomy |
| Rappaport, S. | HQ-SA/Opp, A. G. | |

NGR 22-009-733 **Massachusetts Institute of Technology** **2476**
 Investigation of pilot's role & display requirements in automatic landings

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/30/72-08/31/76 | FY76: \$60,000 | TOTAL: \$224,427 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Curry, R. E. | ARC/Wempe, T. E. | 41-Aero Engr |
| | ARC/Lauber, J. K. | |

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NGR 22-009-735 Massachusetts Institute of Technology **2477**
 EOTVOS experiment in earth orbit and related studies
Period *Obligations*
 06/07/73-06/30/74 FY76: TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Chapman, P. K. HQ-MT/Hall, H. 13-Physics

NGR 22-009-741 Massachusetts Institute of Technology **2478**
 Optical and infrared lasers
Period *Obligations*
 12/01/72-02/28/77 FY76: \$30,000 TOTAL: \$170,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Javan, A. GSFC/McElroy, J. H. 13-Physics

NGR 22-009-766 Massachusetts Institute of Technology **2479**
 Monitoring spacecraft atmosphere contaminants by laser absorption spectroscopy
Period *Obligations*
 01/01/74-12/31/76 FY76: \$1,900 TOTAL: \$56,455
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Steinfeld, J. I. ARC/Quattrone, P. D. 12-Chemistry
 ARC/Wydeven, T.

NGR 22-009-778 Massachusetts Institute of Technology **2480**
 Low spectral resolution studies by large space telescope
Period *Obligations*
 10/01/73-02/29/76 FY76: \$2,900 TOTAL: \$13,375
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McCord, T. B. GSFC/Sobieski, S. 11-Astronomy
 GSFC/Meese, K. J.

NGR 22-009-781 Massachusetts Institute of Technology **2481**
 Exploitation of advanced composite materials to lightly loaded structures
Period *Obligations*
 04/16/73-10/31/76 FY76: \$24,979 TOTAL: \$99,752
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mar, J. W. LARC/Rhodes, M. D. 41-Aero Engr
 LARC/Stein, M.

NGR 22-009-785 Massachusetts Institute of Technology **2482**
 Research related to the X-ray astronomy experiment on the OSO-7
Period *Obligations*
 06/20/73-08/15/75 FY76: TOTAL: \$62,614
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Clark, G. W. HQ-SA/Opp, A. G. 13-Physics
 HQ-SA/Roman, N. G.

NGR 22-009-790 Massachusetts Institute of Technology **2483**
 Remote compositional mapping of the lunar surface
Period *Obligations*
 06/22/73-01/31/79 FY76: \$586,500 TOTAL: \$1,210,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McCord, T. B. HQ-SL/Williams, R. J. 32-Geological Sci
 HQ-SL/Flinn, E. A.

NGR 22-009-798 Massachusetts Institute of Technology **2484**
 Role of brain areas controlling eye-head coordination in monkeys
Period *Obligations*
 09/01/73-08/31/76 FY76: \$30,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bizzi, E. ARC/Daunton, N. G. 51-Biology
 ARC/Billingham, J.

NGR 22-009-799 Massachusetts Institute of Technology **2485**
 Liquid phase catalytic reforming of organic spacecraft waste
Period *Obligations*
 10/01/73-08/14/76 FY76: \$31,675 TOTAL: \$88,515
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Modell, M. ARC/Quattrone, P. D. 12-Chemistry

NGR 22-009-805 Massachusetts Institute of Technology **2486**
 Flow-generated noise and aeroacoustic instabilities in ducts and silencers
Period *Obligations*
 09/01/73-08/31/76 FY76: TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ingard, K. U. LERC/Baumeister, K. J. 41-Aero Engr
 LERC/Rice, E. J.

NGR 22-009-818 Massachusetts Institute of Technology **2487**
 Aerodynamics of bird flight
Period *Obligations*
 09/01/73-08/31/78 FY76: \$24,923 TOTAL: \$78,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Widnall, S. E. LARC/Hoad, D. R. 41-Aero Engr
 LARC/Margason, R. J.

NGR 22-009-826 Massachusetts Institute of Technology **2488**
 Neural orientation growth and maintenance
Period *Obligations*
 09/01/73-08/31/76 FY76: \$30,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nauta, W. J. ARC/Daunton, N. G. 51-Biology
 Teuber, H. L.

NGR 22-009-839 Massachusetts Institute of Technology **2489**
 Wideband recording system for very long baseline interferometry
Period *Obligations*
 04/01/74-08/31/76 FY76: \$56,000 TOTAL: \$173,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Counselman, C. C., III GSFC/Clark, T. A. 99-Multi-Discip
 Shapiro, I. I.

NSG 1018 Massachusetts Institute of Technology **2490**
 Multiple model adaptive control method for flight control systems
Period *Obligations*
 03/06/74-12/05/76 FY76: \$60,000 TOTAL: \$147,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Athans, M. LARC/Gera, J. 41-Aero Engr
 LARC/Elliott, J. R.

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NSG 1048 **Massachusetts Institute of Technology** **2491**
Wet photoelectric cells, conversion, transfer and storage of intense optical energy

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 05/15/74-05/14/77 | FY76: \$57,000 | TOTAL: \$172,815 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wrighton, M. S. | LARC/Hess, R. V. | 12-Chemistry |
| | LARC/Byvik, C. E. | |

NSG 1112 **Massachusetts Institute of Technology** **2492**
A dual-mode generalized ratio approach to self-reorganizing digital flight control system design

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 10/01/74-07/31/76 | FY76: \$40,000 | TOTAL: \$82,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Willsky, A. S. | LARC/Montgomery, R. C. | 41-Aero Engr |

NSG 1190 **Massachusetts Institute of Technology** **2493**
Characterization of high energy gap semi-conductor

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 10/01/75-09/30/78 | FY76: \$50,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gatos, H. C. | LARC/Byvik, C. E. | 47-Materials Engr |
| | LARC/Conway, E. J. | |

NSG 1217 **Massachusetts Institute of Technology** **2494**
Improvement of composite fracture toughness by fusible fibers and coating

| Period | Obligations | |
|----------------------|----------------------|-----------------|
| 08/01/75-07/31/76 | FY76: \$34,300 | TOTAL: \$34,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Williams, J. H., Jr. | LARC/Fichter, W. B. | 49-Engr, NEC |
| | LARC/Davidson, J. R. | |

NSG 1219 **Massachusetts Institute of Technology** **2495**
Research on unsteady, nonlinear transonic flow

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 07/10/75-07/09/77 | FY76: \$28,621 | TOTAL: \$28,621 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Harris, W. L. | LARC/Bland, S. R. | 41-Aero Engr |
| | LARC/Bennett, R. M. | |

NSG 1292 **Massachusetts Institute of Technology** **2496**
Study feasibility of applying digital information processing to a magnetic model suspension and balance for use with wind tunnels

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/01/76-10/31/77 | FY76: \$29,152 | TOTAL: \$29,152 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Covert, E. E. | LARC/Boyden, R. P. | 41-Aero Engr |
| Whitaker, H. P. | LARC/Kilgore, R. A. | |

NSG 1299 **Massachusetts Institute of Technology** **2497**
Survey of the potential users of the long duration exposure facilities

| Period | Obligations | |
|----------------------|------------------------|-----------------|
| 04/01/76-09/30/76 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCarthy, J. F., Jr. | LARC/O'Neal, R. L. | 99-Multi-Discip |
| | LARC/Dibattista, J. D. | |

NSG 2010 **Massachusetts Institute of Technology** **2498**
Study of impact on space shuttle on stratospheric ozone

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 03/01/74-08/30/76 | FY76: \$92,000 | TOTAL: \$301,910 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Prinn, R. G. | ARC/Reynolds, R. T. | 31-Atmos Sci |

NSG 2032 **Massachusetts Institute of Technology** **2499**
Research on habituation to novel visual-vestibular environments with particular reference to space flight

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 07/01/74-08/31/76 | FY76: \$80,000 | TOTAL: \$170,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Young, L. R. | ARC/Daunton, N. G. | 59-Life Sci, NEC |
| Oman, C. M. | | |
| Frishkopf, L. S. | | |

NSG 2076 **Massachusetts Institute of Technology** **2500**
Workshop on systems reliability issues for aircraft

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/01/75-09/30/76 | FY76: \$11,770 | TOTAL: \$11,770 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Athans, M. | ARC/Doolin, B. F. | 49-Engr, NEC |

NSG 2095 **Massachusetts Institute of Technology** **2501**
High speed rotor noise research

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 08/01/75-07/31/77 | FY76: \$31,490 | TOTAL: \$31,490 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Harris, W. L. | ARC/Rabbott, J. P., Jr. | 41-Aero Engr |
| Lee, Y. A. | ARC/Stroub, R. H. | |

NSG 2118 **Massachusetts Institute of Technology** **2502**
Experimentation in supervisory controls flight management

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/01/75-10/31/76 | FY76: \$54,710 | TOTAL: \$54,710 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sheridan, T. B. | ARC/Wempe, T. E. | 99-Multi-Discip |
| | ARC/Huff, E. M. | |

NSG 2129 **Massachusetts Institute of Technology** **2503**
The impact of changing technology on the demand for air transportation

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 12/01/75-11/30/76 | FY76: \$99,241 | TOTAL: \$99,241 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Taneja, N. K. | ARC/Williams, L. J. | 41-Aero Engr |
| Simpson, R. W. | ARC/Waters, M. H. | |
| Eafsey, K. N. | | |

**NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)**

NSG 2142 **Massachusetts Institute of Technology** **2504**
Helicopter rotor noise

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 07/01/76-06/30/77 | FY76: \$41,392 | TOTAL: \$41,392 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Widnall, S. E. | ARC/Rabbott, J. P., Jr. | 41-Aero Engr |
| | ARC/Biggers, J. C. | |

NSG 3017 **Massachusetts Institute of Technology** **2505**
Silicon surface phenomena related to energy conversion

| Period | Obligations | |
|-------------------|-----------------------------|-----------------|
| 05/01/74-07/31/76 | FY76: \$40,500 | TOTAL: \$81,100 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gatos, H. C. | LERC/Weinberg, I. | 13-Physics |
| | LERC/Brandhorst, H. W., Jr. | |

NSG 3044 **Massachusetts Institute of Technology** **2506**
Special finite elements for the analysis of flaw growth and fracture in fiber composites

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/01/75-05/01/77 | FY76: \$69,610 | TOTAL: \$139,210 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McGarry, F. G. | LERC/Chamis, C. C. | 49-Engr, NEC |
| Mandell, J. F. | LERC/Smith, G. T. | |

NSG 3046 **Massachusetts Institute of Technology** **2507**
Directional solidification of gamma/gamma prime-delta in situ composites

| Period | Obligations | |
|-------------------|-------------------------|-------------------|
| 06/30/75-07/01/77 | FY76: \$44,660 | TOTAL: \$89,623 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Flemings, M. C. | LERC/Scheuermann, C. M. | 47-Materials Engr |
| Young, K. P. | | |

NSG 3061 **Massachusetts Institute of Technology** **2508**
A chromatographic analysis of the response of polymeric fire-detection devices to combustion

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 05/01/75-12/31/76 | FY76: \$85,000 | TOTAL: \$85,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Senturia, S. D. | LERC/Gluyas, R. E. | 19-Phys Sci, NEC |
| Kastner, M. A. | LERC/Serafini, T. T. | |
| Fonstad, C. G. | | |

NSG 3064 **Massachusetts Institute of Technology** **2509**
Monitoring of elastic stresses by acoustic emission

| Period | Obligations | |
|----------------------|--------------------|-------------------|
| 07/01/75-06/30/77 | FY76: \$37,890 | TOTAL: \$78,420 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Williams, J. H., Jr. | LERC/Vary, A. | 47-Materials Engr |

NSG 3076 **Massachusetts Institute of Technology** **2510**
Effects of fuel composition on soot formation in combustors

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/01/75-10/01/76 | FY76: \$44,850 | TOTAL: \$44,850 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Keck, J. C. | LERC/Norgren, C. T. | 41-Aero Engr |
| Hoult, D. P. | LERC/Grobman, J. S. | |

NSG 3079 **Massachusetts Institute of Technology** **2511**
Development of techniques for turbomachinery flutter clearance

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 07/15/75-07/14/76 | FY76: \$49,940 | TOTAL: \$49,940 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kerrebrock, J. L. | LERC/Adamczyk, J. J. | 41-Aero Engr |
| Dugundji, J. | | |

NSG 3088 **Massachusetts Institute of Technology** **2512**
Submillimeter laser Thomson scattering system for measurement of ion temperatures in Summa

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 12/11/75-03/01/77 | FY76: \$60,000 | TOTAL: \$60,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lax, B. | LERC/Reinmann, J. J. | 13-Physics |
| Cohn, D. R. | | |

NSG 3093 **Massachusetts Institute of Technology** **2513**
Fluorescent visualization for turbomachine research

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 01/05/76-01/05/77 | FY76: \$84,820 | TOTAL: \$84,820 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kerrebrock, J. L. | LERC/McNally, W. D. | 41-Aero Engr |
| Epstein, A. H. | | |

NSG 3102 **Massachusetts Institute of Technology** **2514**
Soot information and burnout in flames

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/15/76-03/14/77 | FY76: \$43,390 | TOTAL: \$43,390 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Howard, J. B. | LERC/Norgren, C. T. | 43-Chem Engr |

NSG 5076 **Massachusetts Institute of Technology** **2515**
Numerical study of the atmospheric circulation of Venus

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/17/75-08/16/76 | FY76: \$24,000 | TOTAL: \$24,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rivas, E. K. | GSFC/Hansen, J. E. | 11-Astronomy |
| Stone, P. H. | | |

NSG 5095 **Massachusetts Institute of Technology** **2516**
Assessment of the effects of attenuation and beam width on weather observations

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/01/76-01/31/77 | FY76: \$15,370 | TOTAL: \$15,370 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Austin, P. M. | GSFC/Wexler, R. | 31-Atmos Sci |
| Geotis, S. G. | | |

NASA'S UNIVERSITY PROGRAM
MASSACHUSETTS (Continued)

NSG 5113 **Massachusetts Institute of Technology** **2517**
 Research in stratospheric dynamics

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/76-06/30/77 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stone, P. H. | GSFC/Hansen, J. E. | 31-Atmos Sci |

NSG 7115 **Massachusetts Institute of Technology** **2523**
 Reanalysis of lunar data for study of lunar electromagnetic response

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 02/01/75-04/30/76 | FY76: | TOTAL: \$24,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Madden, T. R. | HQ-SL/Williams, R. J. | 32-Geological Sci |

NSG 7010 **Massachusetts Institute of Technology** **2518**
 Precision selenodesy and lunar libration through very long baseline interferometry observation of ALSEPS

| Period | Obligations | |
|------------------------|-----------------------|-------------------|
| 01/01/74-03/31/77 | FY76: \$101,500 | TOTAL: \$214,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Counselman, C. C., III | HQ-SL/Williams, R. J. | 32-Geological Sci |
| Shapiro, I. I. | HQ-SL/Flinn, E. A. | |

NSG 7118 **Massachusetts Institute of Technology** **2524**
 Very long baseline interferometry observations of ALSEP transmitters

| Period | Obligations | |
|------------------------|-----------------------|-------------------|
| 01/01/75-02/28/77 | FY76: \$23,700 | TOTAL: \$58,176 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Counselman, C. C., III | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7048 **Massachusetts Institute of Technology** **2519**
 Structure and composition of a lunar region: A synthesis

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 03/01/74-02/28/77 | FY76: \$106,700 | TOTAL: \$149,700 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCord, T. B. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7186 **Massachusetts Institute of Technology** **2525**
 An observatory search for and study of new IR sources reported in the AFCRL catalogue

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 12/01/75-11/30/76 | FY76: \$30,000 | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kleinmann, S. G. | HQ-SA/Bogges, N. W. | 11-Astronomy |

NSG 7077 **Massachusetts Institute of Technology** **2520**
 Chemical aspects of lunar origin and physical studies on lunar and meteoritic materials

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 07/01/74-05/31/78 | FY76: | TOTAL: \$58,900 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lewis, J. S. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| Brecher, A. | | |
| Skibo, D. N. | | |

NSG 7227 **Massachusetts Institute of Technology** **2526**
 Computational aspects in the interpretation of geological formations

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 04/15/76-04/14/77 | FY76: \$16,272 | TOTAL: \$16,272 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winston, P. H. | HQ-RE/Gevarter, W. B. | 49-Engr, NEC |
| Weinstein, M. | JPL/Whitney, W. M. | |

NSG 7081 **Massachusetts Institute of Technology** **2521**
 Models of the composition, structure and evolution of the lunar interior

| Period | Obligations | |
|--------------------|-----------------------|-------------------|
| 06/01/74-02/28/79 | FY76: \$288,340 | TOTAL: \$438,410 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Toksoz, M. N. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| Dickey, J. S., Jr. | HQ-SL/Flinn, E. A. | |
| Frey, F. A. | | |

W-13995 **Massachusetts Institute of Technology** **2527**
 Second international conference on Rapidly Quenched Metals

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 11/17/75-06/30/76 | FY76: \$2,000 | TOTAL: \$2,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | HQ-RW/Gangler, J. J. | 47-Materials Engr |

NCA 2-785401 **Tufts University** **2528**
 Multidimensional scaling techniques applied to flight management concept

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 06/20/74-12/31/75 | FY76: \$1,377 | TOTAL: \$1,877 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kreifeldt, J. G. | ARC/Zill, L. P. | 41-Aero Engr |

NSG 7091 **Massachusetts Institute of Technology** **2522**
 Experimental relativity and gravitation study

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/15/74-12/31/75 | FY76: | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Weiss, R. | HQ-SA/Roman, N. G. | 11-Astronomy |

NCA 2-785501 **Tufts University** **2529**
 Effects of heterogenous traffic information display

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/15/75-08/31/76 | FY76: | TOTAL: \$17,621 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kreifeldt, J. G. | ARC/Zill, L. P. | 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM **MASSACHUSETTS (Continued)**

NCA 2-785601 **Tufts University** **2530**
Investigation of the effects of a moving acoustic medium on jet noise measurements
Period *Obligations*
07/01/75-08/31/76 FY76: TOTAL: \$22,320
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cole, J. E., III ARC/Zill, L. P. 41-Aero Engr

NGR 22-012-026 **Tufts University** **2531**
Investigation of atraumatic techniques for monitoring cardiovascular status and conditioning
Period *Obligations*
03/07/72-10/01/76 FY76: \$30,000 TOTAL: \$155,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spodick, D. H. JSC/Jackson, M. M. 53-Other Medical

NSG 2156 **Tufts University** **2532**
Study of pilot controller interaction under various simulated advanced ATC and navigation concepts
Period *Obligations*
06/01/76-05/31/77 FY76: \$47,898 TOTAL: \$47,898
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kreifeldt, J. G. ARC/Wempe, T. E. 99-Multi-Discip

NSG 1295 **University of Lowell** **2533**
Structural response and input identification
Period *Obligations*
04/01/76-03/31/77 FY76: \$28,879 TOTAL: \$28,879
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McElman, J. A. LARC/Fralich, R. W. 41-Aero Engr
O'Callahan, J. C. LARC/Pinson, L. P.
Epard, S. H.

NAS 2-9129 **University of Massachusetts - Amherst** **2534**
Interdisciplinary scientist and radar team member
Period *Obligations*
01/22/76-10/30/76 FY76: \$5,536 TOTAL: \$5,536
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McGill, G. E. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 5-21871 **University of Massachusetts - Amherst** **2535**
Investigation of ERTS-A data inaccessible regions
Period *Obligations*
10/03/72-10/03/74 FY76: TOTAL: \$2,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, H. P. GSFC/Szajna, E. F. 39-Env Sci, NEC

NGL 22-010-018 **University of Massachusetts - Amherst** **2536**
Pulse frequency modulation in control systems
Period *Obligations*
03/12/68-01/01/75 FY76: TOTAL: \$131,575
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Monopoli, R. V. GSFC/Rolinski, A. J. 45-Elec Engr

NGL 22-010-023 **University of Massachusetts - Amherst** **2537**
Theoretical studies of diffuse reflection and transmission of radiation in planetary atmospheres
Period *Obligations*
05/24/67-08/31/78 FY76: \$49,568 TOTAL: \$359,231
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Irvine, W. M. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGL 22-010-025 **University of Massachusetts - Amherst** **2538**
Study of solar chromosphere from balloon altitudes
Period *Obligations*
10/24/67-12/31/76 FY76: \$9,075 TOTAL: \$585,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strong, J. HQ-ST/Timothy, A. F. 11-Astronomy
HQ-ST/Hunter, W. R.

NGL 22-010-089 **University of Massachusetts - Amherst** **2539**
Lunar sample analysis
Period *Obligations*
03/16/71-01/31/77 FY76: TOTAL: \$86,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haggerty, S. E. JSC/Harris, J. W. 13-Physics

NGR 22-010-076 **University of Massachusetts - Amherst** **2540**
Reconnaissance study of large geologic ring structures on Mars
Period *Obligations*
05/19/70-08/31/76 FY76: \$36,230 TOTAL: \$136,004
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McGill, G. E. HQ-SL/Dwornik, S. E. 32-Geological Sci
Wise, D. U. HQ-SL/Wahmann, R.

NAS 5-23520 **Williams College** **2541**
Study of improvement of hydrogen maser frequency standard
Period *Obligations*
07/01/76-06/31/77 FY76: \$35,500 TOTAL: \$35,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Crampton, S. B. GSFC/Reinhardt, V. S. 13-Physics

NSG 7154 **Worcester Polytechnic Institute** **2542**
Mission-oriented studies of planetary biology
Period *Obligations*
10/01/75-09/30/76 FY76: \$136,390 TOTAL: \$136,390
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Danielli, J. F. HQ-SB/Young, R. S. 51-Biology

MICHIGAN

NAS 1-6860 **Michigan State University** **2543**
Beam time on 48 meV accelerators
Period *Obligations*
11/01/67-11/01/77 FY76: TOTAL: \$6,840
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable LARC/Unavailable 13-Physics

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NGL 23-004-083 Michigan State University 2544
Use of remote sensing for land use policy formulation
Period Obligations
06/08/72-05/31/79 FY76: \$110,000 TOTAL: \$660,000
Prin. Invest. NASA Tech. Officer CASE Category
Boylan, M. G. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGR 23-004-091 Michigan State University 2545
A study of structure of a large angle oblique jet impingement flow
Period Obligations
11/01/73-10/31/76 FY76: \$19,957 TOTAL: \$59,998
Prin. Invest. NASA Tech. Officer CASE Category
Foss, J. F. LARC/Hardin, J. C. 41-Aero Engr

NSG 1138 Michigan State University 2546
An experimental investigation of the initial condition effects on a turbulent shear layer
Period Obligations
01/01/75-12/31/76 FY76: TOTAL: \$4,000
Prin. Invest. NASA Tech. Officer CASE Category
Foss, J. F. LARC/Hefner, J. N. 41-Aero Engr

NSG 1148 Michigan State University 2547
Development and application of an interferometric system for measuring crack displacements
Period Obligations
03/01/75-06/30/76 FY76: TOTAL: \$19,168
Prin. Invest. NASA Tech. Officer CASE Category
Sharp, W. N., Jr. LARC/Elher, W. 47-Materials Engr
LARC/Leybold, H. A.

NSG 3101 Michigan State University 2548
Measurements of mixed mode crack surface displacements and comparisons with theory
Period Obligations
03/15/76-03/14/77 FY76: \$17,708 TOTAL: \$17,708
Prin. Invest. NASA Tech. Officer CASE Category
Sharp, W. N., Jr. LERC/Orange, T. W. 49-Engr, NEC
Altiero, N. J., Jr.

NAS 1-14394 University of Michigan - Ann Arbor 2549
Science support for the limb infrared monitor of the stratosphere experiment
Period Obligations
04/09/76-10/31/78 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. NASA Tech. Officer CASE Category
Drayson, S. R. LARC/Russell, J. M., III 31-Atmos Sci
LARC/James, R. L., Jr.

NAS 2-6057 University of Michigan - Ann Arbor 2550
Vestibular research in space
Period Obligations
06/30/70-04/30/76 FY76: TOTAL: \$181,530
Prin. Invest. NASA Tech. Officer CASE Category
Von Baumgarten A, R. J. 61-Biol Aspects
ARC/Simmonds, R. C.

NAS 2-8992 University of Michigan - Ann Arbor 2551
Outer planet atmospheric entry probe supporting research and technology tasks
Period Obligations
09/22/75-05/17/76 FY76: \$29,307 TOTAL: \$29,307
Prin. Invest. NASA Tech. Officer CASE Category
Carignan, G. R. ARC/Lincoln, K. A. 13-Physics
Donahue, T. M. ARC/Vojvodich, N. S.
Atreya, S. A.

NAS 2-9126 University of Michigan - Ann Arbor 2552
Interdisciplinary scientist, Pioneer/Venus program
Period Obligations
02/10/76-10/01/76 FY76: \$23,465 TOTAL: \$23,465
Prin. Invest. NASA Tech. Officer CASE Category
Donahue, T. M. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 2-9130 University of Michigan - Ann Arbor 2553
Interdisciplinary scientist, Pioneer/Venus program
Period Obligations
02/09/76-10/01/76 FY76: \$14,525 TOTAL: \$14,525
Prin. Invest. NASA Tech. Officer CASE Category
Nagy, A. F. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NAS 3-19533 University of Michigan - Ann Arbor 2554
Testing and comparative evaluations of three antenna systems
Period Obligations
02/14/75-07/31/75 FY76: TOTAL: \$14,059
Prin. Invest. NASA Tech. Officer CASE Category
Ferris, J. LERC/Wright, D. 42-Astro Engr

NAS 3-20051 University of Michigan - Ann Arbor 2555
Lightweight, low compression aircraft diesel engine
Period Obligations
06/30/76-06/29/77 FY76: \$121,000 TOTAL: \$121,000
Prin. Invest. NASA Tech. Officer CASE Category
Kroeger, R. A. LERC/Ream, L. W. 46-Mech Engr

NAS 5-11376 University of Michigan - Ann Arbor 2556
Ae-c, d, & e Pelz experiment
Period Obligations
01/07/71-12/27/77 FY76: \$33,000 TOTAL: \$991,532
Prin. Invest. NASA Tech. Officer CASE Category
Carignan, G. R. GSFC/Hedin, A. 31-Atmos Sci

NAS 5-11380 University of Michigan - Ann Arbor 2557
Ae-c, d, and e neutral temperature experiment
Period Obligations
02/03/71-06/30/77 FY76: \$84,807 TOTAL: \$948,031
Prin. Invest. NASA Tech. Officer CASE Category
Cliff, R. A. GSFC/Sing, M. L. 31-Atmos Sci
Danchenko, V.

NASA'S UNIVERSITY PROGRAM MICHIGAN (Continued)

NAS 5-20622 **University of Michigan - Ann Arbor** **2558**
Nitric oxide detector

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 06/18/74-10/31/76 | FY76: \$99,749 | TOTAL: \$262,741 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Horvath, J. J. | GSFC/Wright, D. U., Jr. | 31-Atmos Sci |
| Carignan, G. R. | GSFC/Theon, J. S. | |

NAS 5-22875 **University of Michigan - Ann Arbor** **2565**
Particle measurement systems

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 12/04/75-12/04/76 | FY76: \$36,132 | TOTAL: \$36,132 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| MacNee, A. B. | GSFC/Trainor, J. H. | 13-Physics |
| Masnari, N. A. | | |

NAS 5-20806 **University of Michigan - Ann Arbor** **2559**
Breadboard design and component layout of Pioneer/Venus electron temperature probe signal processor

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 12/13/74-09/30/75 | FY76: \$42,804 | TOTAL: \$123,982 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carignan, G. R. | GSFC/Krehbiel, J. P. | 31-Atmos Sci |

NAS 5-23006 **University of Michigan - Ann Arbor** **2566**
Atmosphere Explorer visual airglow photometer

| Period | Obligations | |
|-------------------|----------------------|--------------------|
| 08/24/71-11/19/77 | FY76: \$121,000 | TOTAL: \$1,105,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hays, P. B. | GSFC/Corrigan, J. P. | 31-Atmos Sci |
| Carignan, G. R. | | |
| Shepherd, G. G. | | |

NAS 5-20839 **University of Michigan - Ann Arbor** **2560**
Data reduction and analysis of IMP I radio astronomy experiment

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/19/75-07/31/76 | FY76: | TOTAL: \$29,964 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Haddock, F. T. | GSFC/Davis, M. A. | 13-Physics |

NAS 5-23230 **University of Michigan - Ann Arbor** **2567**
Program of aeronautical research utilizing thermosphere probe

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 06/18/73-07/31/76 | FY76: \$75,000 | TOTAL: \$336,927 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carignan, G. R. | GSFC/Spencer, N. W. | 31-Atmos Sci |

NAS 5-20939 **University of Michigan - Ann Arbor** **2561**
Laboratory tests and development of mass spectrometer sub-systems

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 02/13/75-06/30/77 | FY76: \$77,045 | TOTAL: \$127,045 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carignan, G. R. | GSFC/Cooley, J. E. | 31-Atmos Sci |
| Kennedy, B. R. | GSFC/Niemann, H. B. | |

NAS 5-23267 **University of Michigan - Ann Arbor** **2568**
Pulse circuitry for application to spark chambers

| Period | Obligations | |
|---------------------|--------------------|-----------------|
| 06/21/73-09/13/75 | FY76: | TOTAL: \$28,684 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ponnamperuma, C. A. | GSFC/Ross, R. W. | 45-Elec Engr |

NAS 5-22441 **University of Michigan - Ann Arbor** **2562**
Stratospheric physics and chemistry workshop

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 05/15/75-08/30/75 | FY76: | TOTAL: \$19,953 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Carignan, G. R. | GSFC/Spencer, N. W. | 13-Physics |

NAS 8-30625 **University of Michigan - Ann Arbor** **2569**
Environmental impact of OSS launch vehicle and propulsion programs

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 05/01/74-12/31/74 | FY76: | TOTAL: \$25,001 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stedman, D. H. | MSFC/Devries, L. L. | 31-Atmos Sci |
| Nelson, A. | MSFC/Stephens, J. B. | |

NAS 5-22587 **University of Michigan - Ann Arbor** **2563**
Pioneer/Venus electron temperature probe

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 09/29/75-06/30/78 | FY76: \$317,626 | TOTAL: \$317,626 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brace, L. H. | GSFC/Krehbiel, J. P. | 31-Atmos Sci |

NAS 8-31397 **University of Michigan - Ann Arbor** **2570**
Definition of lidar requirements and plasma wake and sheath experiments for the AMPS laboratory

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 03/11/75-09/30/75 | FY76: | TOTAL: \$49,781 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nagy, A. F. | MSFC/Roberts, W. T. | 19-Phys Sci, NEC |
| Samir, U. | MSFC/Chappell, C. R. | |

NAS 5-22861 **University of Michigan - Ann Arbor** **2564**
Fabrication and test of high-speed monolithic integrated pulse amplifier

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/28/75-11/29/76 | FY76: \$28,874 | TOTAL: \$28,874 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| MacNee, A. B. | GSFC/Way, S. H. | 45-Elec Engr |
| Masnari, N. A. | GSFC/Cooley, J. E. | |

NAS 8-31772 **University of Michigan - Ann Arbor** **2571**
Definition of atmospheric science experiments and technique - wake zone mapping experiments

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 02/09/76-08/09/76 | FY76: \$27,631 | TOTAL: \$27,631 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Samir, U. | MSFC/Roberts, W. T. | 31-Atmos Sci |
| Drayson, S. R. | MSFC/Chappell, C. R. | |
| Eusch, T. A. | | |

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NAS 8-31987 **University of Michigan - Ann Arbor** **2572**
 Mass spectrometer for induced environment contamination monitor
Period *Obligations*
 04/30/76-11/30/79 FY76: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Carignan, G. R. MSFC/Shriver, E. L. 19-Phys Sci, NEC
 Maurer, J. C. MSFC/Williams, J. R.
 Eusch, T. A.

NCA 2-440601 **University of Michigan - Ann Arbor** **2573**
 Development of a hybrid simulation of a rotor model
Period *Obligations*
 03/15/76-03/14/77 FY76: \$14,300 TOTAL: \$14,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Howe, R. M. ARC/Zill, L. P. 46-Mech Engr

NGL 23-005-005 **University of Michigan - Ann Arbor** **2574**
 Research on heat resistant alloys for use in supersonic aircrafts
Period *Obligations*
 12/15/60-07/01/75 FY76: \$20 TOTAL: \$598,006
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wilson, D. J. LERC/Freche, J. C. 47-Materials Engr
 LERC/Harf, F. H.

NGL 23-005-010 **University of Michigan - Ann Arbor** **2575**
 Structural analysis of aircraft tires
Period *Obligations*
 01/02/63-12/31/76 FY76: TOTAL: \$357,731
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Clark, S. R. LARC/McCarty, J. L. 41-Aero Engr

NGL 23-005-275 **University of Michigan - Ann Arbor** **2576**
 Solar research program of McMath-Hulbert observatory and improvement of photoheliographic telescope
Period *Obligations*
 04/08/68-06/30/76 FY76: \$50,000 TOTAL: \$535,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mohler, O. C. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 23-005-015 **University of Michigan - Ann Arbor** **2577**
 Theoretical investigation of space charge waves in ionosphere and space plasma sheaths
Period *Obligations*
 10/28/63-06/30/76 FY76: \$125,000 TOTAL: \$1,137,805
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nagy, A. F. HQ-ST/Cauffman, D. P. 31-Atmos Sci
 HQ-ST/Schmerling, E. R.

NGR 23-005-094 **University of Michigan - Ann Arbor** **2578**
 An investigation of plasma kinetics, with emphasis on the interaction between rarefied plasmas and moving bodies
Period *Obligations*
 06/26/64-04/30/77 FY76: \$32,641 TOTAL: \$348,676
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Liu, W. C. HQ-SL/Fellows, R. F. 31-Atmos Sci
 HQ-SL/Brunk, W. E.

NGR 23-005-320 **University of Michigan - Ann Arbor** **2579**
 Theoretical and experimental studies of spacecraft space plasma interactions
Period *Obligations*
 01/29/69-07/31/76 FY76: \$55,000 TOTAL: \$352,557
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Samir, U. HQ-ST/Schmerling, E. R. 13-Physics

NGR 23-005-360 **University of Michigan - Ann Arbor** **2580**
 A program in aeronomy
Period *Obligations*
 12/29/69-11/30/76 FY76: \$180,000 TOTAL: \$1,058,101
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sharp, W. E. GSFC/Bissell, E. E., Jr. 13-Physics
 HQ-ST/Schmerling, E. R.

NGR 23-005-464 **University of Michigan - Ann Arbor** **2581**
 Optical studies of galactic X-ray sources
Period *Obligations*
 03/02/71-02/28/77 FY76: \$17,344 TOTAL: \$90,627
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hiltner, W. A. HQ-SA/Rosendhal, J. D. 11-Astronomy
 HQ-SA/Roman, N. G.

NGR 23-005-523 **University of Michigan - Ann Arbor** **2582**
 Study of flow near the foot of a weak shock terminating a region of supersonic flow
Period *Obligations*
 04/20/72-07/31/76 FY76: TOTAL: \$138,469
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sichel, M. LARC/Czarnecki, K. R. 41-Aero Engr
 Adamson, T. C., Jr.
 Messiter, A. F.

NGR 23-005-528 **University of Michigan - Ann Arbor** **2583**
 Fiber-reinforced solids possessing great fracture toughness & the role of interfacial strength
Period *Obligations*
 07/26/72-07/31/77 FY76: \$19,380 TOTAL: \$70,041
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Felbeck, D. K. LARC/Fichter, W. B. 47-Materials Engr
 LARC/Elber, W.

NGR 23-005-536 **University of Michigan - Ann Arbor** **2584**
 Research in ignition of metals, lubricants, and contaminants in oxygen-rich atmospheres
Period *Obligations*
 07/01/72-12/31/76 FY76: \$25,000 TOTAL: \$120,401
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nicholls, J. A. LERC/Haggard, J. B., Jr. 42-Astro Engr
 Adamson, T. C., Jr.

NASA'S UNIVERSITY PROGRAM MICHIGAN (Continued)

NGR 23-005-537 **University of Michigan - Ann Arbor** **2585**
Application of Mossbauer spectroscopy to the determination of
source material and thermal histories of tektites

| | |
|----------------------|---------------------------------------|
| <i>Period</i> | <i>Obligations</i> |
| 06/23/72-05/31/75 | FY76: TOTAL: \$45,494 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Evans, B. J. | HQ-SM/Bryson, R. P. 32-Geological Sci |

NGR 23-005-540 University of Michigan - Ann Arbor 2586
Experimental and theoretical study of sound from meteors

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 01/07/72-03/31/77 | FY76: \$62,109 TOTAL: \$131,109 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Bartman, F. L. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Donn, B. D. |

NGR 23-005-543 University of Michigan - Ann Arbor 2587
Basic research in solar physics

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/17/72-12/31/74 | FY76: | TOTAL: \$15,664 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Teske, R. G. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NGR 23-005-617 University of Michigan - Ann Arbor 2588
Computer programs for the calculation of atmospherical infrared
transmittance

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/12/73-07/31/75 | FY76: | TOTAL: \$26,166 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Drayson, S. R. | LARC/Reichle, H. G., Jr. | 31-Atmos Sci |

NSG 1003 University of Michigan - Ann Arbor 2589
Measurement of ozone transmissivity at low temperature

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 03/01/74-05/31/75 | FY76: TOTAL: \$39,277 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Drayson, S. R. | LARC/Russell, J. M., III 31-Atmos Sci |
| Kuhn, W. R. | LARC/Davis, R. E. |
| Chaney, L. W. | |

| | | |
|---|------------------------------------|------|
| NSG 1080 | University of Michigan - Ann Arbor | 2590 |
| Definition of tire properties for landing system analyses | | |

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/74-08/31/76 | FY76: \$30,036 | TOTAL: \$68,498 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Clark, S. K. | LARC/McCarty, J. L. | 41-Aero Engr |
| | LARC/Tanner, J. A. | |

NSG 1176 University of Michigan - Ann Arbor 2591

| Comparative analyses of genetic algorithms in relation to other multimodal function optimization techniques | | |
|---|----------------------|-----------------|
| Period | | Obligations |
| 05/01/75-10/31/76 | FY76: | TOTAL: \$15,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Holland, J. H. | LARC/Stroeter, T. A. | 21-Mathematics |
| | LARC/Hogge, J. E. | |

NSG 1229 University of Michigan - Ann Arbor 2592
Stall/spin program research

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/07/75-09/30/76 | FY76: \$16,697 | TOTAL: \$16,697 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Krocger, R. A. | LARC/Stough, H. P. | 41-Aero Engr |

| | | |
|--|------------------------------------|------|
| NSG 1243 | University of Michigan - Ann Arbor | 2593 |
| Rain scavenging of solid rocket motor exhaust clouds | | |

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/75-09/30/76 | FY76: \$50,585 | TOTAL: \$50,585 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dingle, A. N. | LARC/Pelletier, G. L. | 31-Atmos Sci |
| | LARC/Wagner, H. S. | |

NSG 1306 **University of Michigan - Ann Arbor** **2594**
Models and techniques for evaluating the effectiveness of aircraft
computing systems

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/01/76-04/30/77 | FY76: \$69,822 | TOTAL: \$69,822 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Meyer, J. F. | LARC/Bavuso, S. J. | 45-Elec Engr |

NSG 2018 University of Michigan - Ann Arbor 2595
GRAD research aeronautics program

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/01/74-09/30/76 | FY76: \$25,000 | TOTAL: \$156,762 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kroeger, R. A. | ARC/Feistel, T. W. | 41-Aero Engr |

NSG 2056 **University of Michigan - Ann Arbor** **2596**
Interactive computer graphics study

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/01/75-08/15/76 | FY76: \$30,000 | TOTAL: \$45,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kroeger, R. A. | ARC/Galloway, T. L. | 41-Aero Engr |
| Phillips, R. L. | ARC/Schairer, E. T. | |
| Smith, M. R. | | |

NSG 2113 University of Michigan - Ann Arbor 2597
Improvement of light aircraft propulsion efficiency

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/75-09/30/76 | FY76: \$65,366 | TOTAL: \$65,366 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kroeger, R. A. | ARC/Anderson, S. B. | 41-Aero Engr |

NSG 5044 University of Michigan - Ann Arbor 2598
Investigations of electromagnetic scattering by columnar ice

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 01/01/75-12/31/75 | FY76: TOTAL: \$28,808 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Weil, H. | GSFC/Curran, R. J. 31-Atmos Sci |
| Senior, T. B. | GSFC/Fraser, R. S. |

NASA'S UNIVERSITY PROGRAM
MICHIGAN (Continued)

NSG 5097 **University of Michigan - Ann Arbor** **2599**
Measurement of hydrogen density in the atmosphere of the earth
Period *Obligations*
03/01/76-02/28/77 FY76: \$4,690 TOTAL: \$4,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Donahue, T. M. GSFC/Kupperian, J. E. 11-Astronomy
Atreya, S. A.

NSG 5117 **University of Michigan - Ann Arbor** **2600**
Measurement of the H2 density near 100 km of earth's atmosphere
Period *Obligations*
06/01/76-05/31/77 FY76: \$12,000 TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Donahue, T. M. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7004 **University of Michigan - Ann Arbor** **2601**
Analysis of IMP-6 solar radio burst
Period *Obligations*
11/01/73-04/30/76 FY76: \$1,000 TOTAL: \$179,703
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haddock, F. T. HQ-SA/Jordan, S. D. 13-Physics

NSG 7137 **University of Michigan - Ann Arbor** **2602**
Analysis of OGO-6 photometer
Period *Obligations*
01/01/75-01/31/76 FY76: TOTAL: \$12,762
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Donahue, T. M. HQ-ST/Schmerling, E. R. 11-Astronomy

NSG 7187 **University of Michigan - Ann Arbor** **2603**
Theoretical and numerical studies of stratospheric chemistry and radiation
Period *Obligations*
10/01/75-09/30/76 FY76: \$50,070 TOTAL: \$50,070
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cicerone, R. J. HQ-SU/King, J., Jr. 12-Chemistry
HQ-SU/Gaunter, D. J.

NSG 7209 **University of Michigan - Ann Arbor** **2604**
A program of stratospheric research
Period *Obligations*
01/01/76-12/31/76 FY76: \$108,000 TOTAL: \$108,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Donahue, T. M. HQ-SU/King, J., Jr. 31-Atmos Sci
Kuhn, W. R. HQ-SU/Reed, E. F.
Cerone, C. I.

NSG 9031 **University of Michigan - Ann Arbor** **2605**
Study of atom-radical reaction system capable of providing in situ measurements of NO2, HO2, ClO, and BrO
Period *Obligations*
06/15/75-06/14/76 FY76: TOTAL: \$38,774
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, J. G. JSC/Stanley, J. F. 31-Atmos Sci

S-54214A **University of Michigan - Ann Arbor** **2606**
Feasibility study of Doppler signature detection of incipient tornadoes
Period *Obligations*
05/21/75-11/21/75 FY76: TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Senior, T. B. GSFC/Levine, D. M. 31-Atmos Sci

NAS 8-29823 **Wayne State University** **2607**
Electrophoretic separation of proteins in space
Period *Obligations*
05/15/73-09/15/75 FY76: TOTAL: \$75,880
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brown, R. K. MSFC/Allen, R. E. 47-Materials Engr
MSFC/Nerren, B. H.

NGR 23-006-063 **Wayne State University** **2608**
Laser power solar cell research
Period *Obligations*
04/10/73-09/27/75 FY76: TOTAL: \$21,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, E. Y. LERC/Dunning, J. W., Jr. 45-Elec Engr
Yu, F. T. LERC/Brandhorst, H. W., Jr.

NSG 2008 **Wayne State University** **2609**
Mathematical models of in vivo measurement of human ulnar strength
Period *Obligations*
02/01/74-09/30/76 FY76: TOTAL: \$38,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Orne, D. ARC/Young, D. R. 53-Other Medical

NSG 3014 **Wayne State University** **2610**
Solar energy research
Period *Obligations*
06/19/74-07/03/76 FY76: TOTAL: \$11,060
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, E. Y. LERC/Brandhorst, H. W., Jr. 13-Physics
LERC/Bernatowicz, D. T.

NSG 3035 **Wayne State University** **2611**
Laser power research
Period *Obligations*
09/03/74-03/02/77 FY76: \$720 TOTAL: \$11,780
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yu, F. T. LERC/Dunning, J. W., Jr. 45-Elec Engr

NSG 3081 **Wayne State University** **2612**
Solar energy research
Period *Obligations*
09/15/75-03/14/77 FY76: \$12,570 TOTAL: \$12,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, E. Y. LERC/Brandhorst, H. W., Jr. 13-Physics
LERC/Bernatowicz, D. T.

NASA'S UNIVERSITY PROGRAM MINNESOTA

MINNESOTA

NAS 5-23557 **Concordia College in Moorhead** **2613**
Post flight calibration study on the lunar ejecta and meteorite experiment

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/14/76-03/30/77 | FY76: \$27,080 | TOTAL: \$27,080 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bailey, C. F. | GSFC/Berg, O. E. | 11-Astronomy |
| Frantsvog, D. J. | | |

NAS 1-9697 **Univ of Minnesota - Minneapolis-St Paul** **2614**
Participation in the science planning for the Viking 1975 missions in the area of entry science

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 03/20/70-03/31/77 | FY76: \$25,371 | TOTAL: \$363,933 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nier, A. O. | LARC/Williams, T. S., Jr. | 99-Multi-Discip |
| | LARC/Glenny, W. R. | |

NAS 1-11676 **Univ of Minnesota - Minneapolis-St Paul** **2615**
Fabrication, testing, and calibration of flight mass spectrometers for dual air density project

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 06/16/72-12/31/75 | FY76: \$14,245 | TOTAL: \$663,937 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nier, A. O. | LARC/Beswick, A. G. | 31-Atmos Sci |
| Mauersberger, K. | LARC/Prior, E. J. | |

NAS 1-13712 **Univ of Minnesota - Minneapolis-St Paul** **2616**
Data analysis for dual air density satellites

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 12/16/74-09/15/77 | FY76: | TOTAL: \$33,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mauersberger, K. | LARC/Keating, G. M. | 31-Atmos Sci |
| Nier, A. O. | LARC/Lee, R. B., III | |

NAS 2-8812 **Univ of Minnesota - Minneapolis-St Paul** **2617**
Design and development of the bus neutral mass spectrometer

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/17/75-08/31/78 | FY76: \$15,000 | TOTAL: \$18,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nier, A. O. | ARC/Thorley, G. W. | 31-Atmos Sci |
| Mauersberger, K. | ARC/Sperans, J. | |

NAS 5-3838 **Univ of Minnesota - Minneapolis-St Paul** **2618**
Zodiacal light experiment

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/25/64-12/31/75 | FY76: | TOTAL: \$504,581 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Epney, O. | GSFC/Staff, W. O. | 13-Physics |

NAS 5-11173 **Univ of Minnesota - Minneapolis-St Paul** **2619**
Magnetic fields experiment for S3

| Period | Obligations | |
|--------------------|----------------------|------------------|
| 10/22/68-03/31/76 | FY76: | TOTAL: \$440,280 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cahill, L. J., Jr. | GSFC/Sizemore, K. O. | 49-Engr, NEC |

NAS 5-11310 **Univ of Minnesota - Minneapolis-St Paul** **2620**
Ac electric fields experiment Helios

| Period | Obligations | |
|-------------------|--------------------|--------------------|
| 06/29/70-02/01/79 | FY76: \$115,000 | TOTAL: \$1,204,555 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kellogg, P. J. | GSFC/White, C. E. | 11-Astronomy |
| Hamermesh, M. | | |

NAS 5-11438 **Univ of Minnesota - Minneapolis-St Paul** **2621**
Open source neutral mass spectrometers for AE spacecraft, missions C, D, & E

| Period | Obligations | |
|-------------------|----------------------|--------------------|
| 06/15/71-11/19/77 | FY76: \$120,731 | TOTAL: \$1,012,731 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nier, A. O. | GSFC/Corrigan, J. P. | 31-Atmos Sci |

NAS 5-11687 **Univ of Minnesota - Minneapolis-St Paul** **2622**
Study of particle acceleration mechanisms for the ATS-F

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 05/21/69-05/30/76 | FY76: \$90,379 | TOTAL: \$758,062 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winckler, J. R. | GSFC/Wainscott, F. H. | 49-Engr, NEC |

NAS 5-20837 **Univ of Minnesota - Minneapolis-St Paul** **2623**
Data reduction and analysis of electromagnetic field of IMP I

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/20/75-06/30/76 | FY76: | TOTAL: \$60,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kellogg, P. J. | GSFC/Davis, M. A. | 13-Physics |

NAS 8-27977 **Univ of Minnesota - Minneapolis-St Paul** **2624**
Design, development, & operation of Cerenkov portion of the ACR-7 heavy nuclei experiment under the HEAO program

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/16/72-07/15/80 | FY76: \$242,000 | TOTAL: \$592,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Waddington, C. J. | MSFC/Krome, H. O. | 11-Astronomy |
| | MSFC/Cochran, J. | |

NAS 8-31510 **Univ of Minnesota - Minneapolis-St Paul** **2625**
Study of electron accelerator experiments using subsatellites as detectors

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 07/01/75-06/30/76 | FY76: | TOTAL: \$25,015 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winckler, J. R. | MSFC/Roberts, W. T. | 13-Physics |
| Hendrickson, R. | MSFC/Chappell, C. R. | |

NASA'S UNIVERSITY PROGRAM
MINNESOTA (Continued)

NAS 9-12560 Univ of Minnesota - Minneapolis-St Paul 2626
 Storage stability & improvement of intermediate moisture foods
Period *Obligations*
 03/23/72-03/17/77 FY76: \$55,000 TOTAL: \$210,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Labuza, T. P. JSC/Smith, M. C., Jr. 59-Life Sci, NEC

NGL 24-005-008 Univ of Minnesota - Minneapolis-St Paul 2627
 Analytic and experimental research in space physics including
 balloon and rocket flight experiments
Period *Obligations*
 08/20/62-06/30/77 FY76: TOTAL: \$4,196,132
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Winckler, J. R. HQ-ST/Cauffman, D. P. 13-Physics

NGL 24-005-009 Univ of Minnesota - Minneapolis-St Paul 2628
 Development and application of mass spectrometers to studies
 of earths upper atmosphere and planetary atmospheres
Period *Obligations*
 08/01/62-06/30/78 FY76: \$108,919 TOTAL: \$1,394,396
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nier, A. O. HQ-SL/Fellows, R. F. 31-Atmos Sci
 HQ-SL/Brunk, W. E.

NGL 24-005-160 Univ of Minnesota - Minneapolis-St Paul 2629
 Investigation of environmental microbiology as related to planetary
 quarantine
Period *Obligations*
 06/13/68-05/31/76 FY76: \$20,000 TOTAL: \$1,245,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Straub, C. P. HQ-SB/Hall, L. B. 51-Biology
 HQ-SL/Gallagher, S. G.

NGL 24-005-225 Univ of Minnesota - Minneapolis-St Paul 2630
 Lunar sample analysis
Period *Obligations*
 01/26/71-01/31/78 FY76: \$62,700 TOTAL: \$546,103
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Alexander, E. C., Jr. JSC/Harris, J. W. 13-Physics

NGL 24-005-263 Univ of Minnesota - Minneapolis-St Paul 2631
 Study of Minnesota forests and lakes using data from earth
 resources technology satellites
Period *Obligations*
 07/06/72-06/30/79 FY76: \$60,000 TOTAL: \$280,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shepherd, W. G. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGR 24-005-050 Univ of Minnesota - Minneapolis-St Paul 2632
 Measurement of the gamma ray flux of various celestial point
 sources from high altitude balloons
Period *Obligations*
 04/21/65-06/30/76 FY76: \$60,000 TOTAL: \$667,887
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Waddington, C. J. HQ-SA/Opp, A. G. 11-Astronomy
 Freier, P. S.

NGR 24-005-196 Univ of Minnesota - Minneapolis-St Paul 2633
 Studying the neutral constituents of the polar atmospheres above
 100 km during calendar year 1970
Period *Obligations*
 03/16/70-12/31/75 FY76: TOTAL: \$271,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nier, A. O. HQ-SL/Fellows, R. F. 31-Atmos Sci
 HQ-SA/Logan, W.

NGR 24-005-223 Univ of Minnesota - Minneapolis-St Paul 2634
 Lunar sample analysis
Period *Obligations*
 05/22/71-01/31/77 FY76: \$105,000 TOTAL: \$425,175
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Murthy, V. R. JSC/Harris, J. W. 13-Physics

NGR 24-005-248 Univ of Minnesota - Minneapolis-St Paul 2635
 Lunar sample analysis
Period *Obligations*
 08/03/71-01/31/77 FY76: \$61,900 TOTAL: \$312,045
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Banerjee, S. K. JSC/Harris, J. W. 32-Geological Sci

NGR 24-005-253 Univ of Minnesota - Minneapolis-St Paul 2636
 Particle and field studies of the magnetosphere
Period *Obligations*
 11/01/71-12/31/75 FY76: TOTAL: \$400,186
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cahill, L. J., Jr. HQ-ST/Schmerling, E. R. 13-Physics
 HQ-SA/Logan, W.

NGR 24-005-267 Univ of Minnesota - Minneapolis-St Paul 2637
 Photometric investigation of wavelength dependence of radiation
 from objects, showing excess long wave radiation (10 to 30
 microns)
Period *Obligations*
 02/26/73-09/30/76 FY76: TOTAL: \$49,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ney, E. P. ARC/Cameron, R. M. 11-Astronomy

NGT 24-005-078 Univ of Minnesota - Minneapolis-St Paul 2638
 Training of predoctoral graduate students in space sciences and
 technology
Period *Obligations*
 06/24/65-08/01/78 FY76: TOTAL: \$18,298
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Anderson, G. W. HQ-P/Carter, C. H. 99-Multi-Discip

NSG 2014 Univ of Minnesota - Minneapolis-St Paul 2639
 Exploratory astrophysics and infrared astronomy
Period *Obligations*
 02/01/74-01/31/77 FY76: \$85,000 TOTAL: \$165,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ney, E. P. ARC/Cameron, R. M. 11-Astronomy
 ARC/Gillespie, C. M., Jr.

NASA'S UNIVERSITY PROGRAM MINNESOTA (Continued)

NSG 3041 Univ of Minnesota - Minneapolis-St Paul 2640
Ion beam sputter etch and deposition study

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 01/01/75-01/01/77 | FY76: \$49,999 | TOTAL: \$99,385 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wehner, G. K. | LERC/Weigand, A. J. | 13-Physics |
| Judy, J. H. | LERC/Terdan, F. F. | |

NSG 3094 Univ of Minnesota - Minneapolis-St Paul 2641
Investigations of negative and positive cesium ion species

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/01/76-01/31/77 | FY76: \$50,350 | TOTAL: \$50,350 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chanin, L. M. | LERC/Morris, J. F. | 19-Phys Sci, NEC |

NSG 5088 Univ of Minnesota - Minneapolis-St Paul 2642
Magnetospheric physics phenomena using sounding rockets

| Period | Obligations | |
|-------------------|--------------------------|-----------------|
| 11/01/75-10/31/76 | FY76: \$99,627 | TOTAL: \$99,627 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winckler, J. R. | GSFC/Bissell, E. E., Jr. | 13-Physics |
| | HQ-ST/Cauffman, D. P. | |

NSG 6005 Univ of Minnesota - Minneapolis-St Paul 2643
Investigations of electrical currents in the auroral ionosphere

| Period | Obligations | |
|--------------------|--------------------------|------------------|
| 10/01/75-09/30/76 | FY76: \$95,000 | TOTAL: \$95,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Arnoldy, R. J. | WFC/Ballance, C. W., Jr. | 19-Phys Sci, NEC |
| Cahill, L. J., Jr. | WFC/Gray, J. W. | |

NSG 6009 Univ of Minnesota - Minneapolis-St Paul 2644
Study of neutral composition of upper atmosphere with rocket-borne mass spectrometers

| Period | Obligations | |
|-------------------|--------------------------|------------------|
| 07/01/75-06/30/76 | FY76: \$26,000 | TOTAL: \$26,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nier, A. O. | WFC/Ballance, C. W., Jr. | 19-Phys Sci, NEC |

NSG 7005 Univ of Minnesota - Minneapolis-St Paul 2645
Energetic particles in the magnetosphere and space

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 07/01/73-06/30/78 | FY76: \$102,000 | TOTAL: \$522,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Winckler, J. R. | HQ-ST/Cauffman, D. P. | 39-Env Sci, NEC |
| | HQ-ST/Schmerling, E. R. | |

NSG 7108 Univ of Minnesota - Minneapolis-St Paul 2646
Research of waves and fields in plasma

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 12/01/74-09/30/76 | FY76: \$20,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kellogg, P. J. | HQ-ST/Taylor, W. W. | 19-Phys Sci, NEC |

NSG 7221 Univ of Minnesota - Minneapolis-St Paul 2647
Neutral constituent measurements in stratosphere

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/16/76-06/15/76 | FY76: \$14,409 | TOTAL: \$14,409 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mauersberger, K. | HQ-SU/King, J., Jr. | 31-Atmos Sci |

NSG 7237 Univ of Minnesota - Minneapolis-St Paul 2648
Interpretation of data obtained with the Explorer spacecraft. Major objective is understanding of magnetic storms

| Period | Obligations | |
|--------------------|-------------------------|------------------|
| 06/01/76-05/31/77 | FY76: \$37,000 | TOTAL: \$37,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cahill, L. J., Jr. | HQ-ST/Cauffman, D. P. | 19-Phys Sci, NEC |
| | HQ-ST/Schmerling, E. R. | |

NSR 24-005-245 Univ of Minnesota - Minneapolis-St Paul 2649
Study of the proper motion of stars using the automated proper motion system

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/13/72-08/31/76 | FY76: \$14,252 | TOTAL: \$238,329 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Luyten, W. J. | HQ-SA/Roman, N. G. | 11-Astronomy |
| | GSFC/Mead, J. M. | |

MISSISSIPPI

NGR 25-012-001 Alcorn State University 2650
Radio tracking of geostationary satellites

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 09/01/73-12/31/76 | FY76: \$45,754 | TOTAL: \$126,229 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Paul, M. P. | GSFC/Schmid, P. E. | 31-Atmos Sci |
| | GSFC/Marini, J. W. | |

NSG 8005 Alcorn State University 2651
Bio-degradation of rocket propellant waste (ammonium perchlorate)

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 04/01/74-06/01/76 | FY76: | TOTAL: \$43,395 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Naqvi, S. M. | NSTL/Wolverton, B. C. | 39-Env Sci, NEC |
| Latif, A. | MSFC/Kent, M. I. | |

NSG 8036 Alcorn State University 2652
Bio-gas production from alligator weeds

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 06/01/76-06/01/77 | FY76: \$20,897 | TOTAL: \$20,897 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Latif, A. | NSTL/Wolverton, B. C. | 51-Biology |
| Nagvi, S. M. | MSFC/Kent, M. I. | |

NASA'S UNIVERSITY PROGRAM

MISSISSIPPI (Continued)

NGR 25-011-005 **Jackson State University** **2653**
Establishment of an analytical model for natural water system

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 11/01/73-11/01/74 | FY76: | TOTAL: \$20,933 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sekhon, B. S. | MSFC/Wolverton, B. C. | 39-Env Sci, NEC |
| | MSFC/Kent, M. I. | |

NSG 3004 **Jackson State University** **2654**
Numerical solution of Navier-Stokes equations for steady laminar incompressible flow between two plates with abrupt change of spacings

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/01/74-05/31/77 | FY76: \$23,243 | TOTAL: \$66,686 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chu, C. S. | LERC/Zuk, J. | 49-Engr, NEC |

NSG 8015 **Jackson State University** **2655**
Study aquatic plants as filtration systems for photographic waste

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 06/03/74-06/02/75 | FY76: | TOTAL: \$24,919 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Perkins, J. | MSFC/Wolverton, B. C. | 39-Env Sci, NEC |
| | MSFC/Kent, M. I. | |

NSG 8023 **Jackson State University** **2656**
Establishment of an analytical model for natural water systems

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 11/01/74-10/31/76 | FY76: | TOTAL: \$23,061 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sekhon, B. S. | MSFC/Wolverton, B. C. | 39-Env Sci, NEC |

NSG 8026 **Jackson State University** **2657**
Aquatic plants as filtration systems for chlorinated hydrocarbons

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 06/01/75-06/01/77 | FY76: \$24,966 | TOTAL: \$49,301 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Shore, F. | NSTL/Wolverton, B. C. | 39-Env Sci, NEC |
| | MSFC/Kent, M. I. | |

NSG 9016 **Jackson State University** **2658**
Research in marshland ecology

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/15/74-05/31/77 | FY76: \$20,000 | TOTAL: \$48,012 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nelson, F. R. | NSTL/Joyce, A. T. | 39-Env Sci, NEC |

NAS 8-26749 **Mississippi State University** **2659**
A study of trends and techniques for space base electronics

| Period | Obligations | |
|-------------------|-------------------------|------------------|
| 01/12/71-01/11/77 | FY76: \$20,000 | TOTAL: \$110,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gassaway, J. D. | MSFC/Hollis, B. R., Jr. | 13-Physics |
| | MSFC/Kennedy, B. W. | |

NAS 8-30618 **Mississippi State University** **2660**
Fabrication of thermo-plastic hologram storage devices

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/15/74-12/15/75 | FY76: | TOTAL: \$16,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rogers, T. W. | MSFC/Pitts, E. H. | 45-Elec Engr |

NAS 8-30623 **Mississippi State University** **2661**
Application of remote sensing to the identification of archaeological and potential recreational sites along the Tennessee-Tombigbee waterway route

| Period | Obligations | |
|-------------------|--------------------------|-----------------|
| 04/01/74-10/01/74 | FY76: | TOTAL: \$10,150 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Miller, W. F. | MSFC/Daniels, J. L., Jr. | 39-Env Sci, NEC |
| | MSFC/Bensko, J. | |

NAS 8-31373 **Mississippi State University** **2662**
Study of digital holographic filter generation

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 03/20/75-11/20/76 | FY76: | TOTAL: \$9,980 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ingels, F. M. | MSFC/Smith, H. F. | 45-Elec Engr |
| | MSFC/Pitts, E. H. | |

NAS 8-31568 **Mississippi State University** **2663**
Damping techniques for all modes in an automated control system

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/25/75-08/24/77 | FY76: \$50,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mitchell, G. | MSFC/Guynes, B. U. | 41-Aero Engr |
| | MSFC/Mink, H. J. | |

NAS 8-31770 **Mississippi State University** **2664**
Heat shield model fluctuating pressure test and full scale design requirements

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 12/15/75-12/14/76 | FY76: \$20,000 | TOTAL: \$20,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Shepard, W. S. | MSFC/Clever, W. W. | 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM **MISSISSIPPI (Continued)**

NAS13-10 **Mississippi State University** **2665**
 Design of a solar powered water hyacinth dryer
Period *Obligations*
 03/14/75-06/27/75 **FY76:** **TOTAL: \$9,420**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Forbes, R. E. NSTL/Montgomery, W. D. 49-Engr, NEC
 NSTL/Wolverton, B. C.

NGR 25-001-055 **Mississippi State University** **2671**
 Numerical solution of the Navier-Stokes equations for arbitrary two-dimensional multielement airfoils
Period *Obligations*
 01/01/74-12/31/76 **FY76: \$31,656** **TOTAL: \$86,091**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thompson, J. F. LARC/Bobbitt, P. J. 41-Aero Engr
 LARC/Newman, P. A.

NAS13-21 **Mississippi State University** **2666**
 Beef cattle feeding experiment using nitrogen sources for finishing steer
Period *Obligations*
 09/15/75-04/15/76 **FY76: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Unavailable NSTL/Unavailable 59-Life Sci, NEC

NSG 1083 **Mississippi State University** **2672**
 An exploratory investigation of the cooling drag associated with general aviation propulsive systems
Period *Obligations*
 09/01/74-08/31/76 **FY76: \$56,313** **TOTAL: \$100,959**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cross, E. J., Jr. LARC/Hall, A. W. 41-Aero Engr
 Mertaugh, L. J. LARC/Fisher, B. D.

NCA 8-107 **Mississippi State University** **2667**
 A study of the fracture mechanics properties of ceramic materials
Period *Obligations*
 03/10/75-03/09/76 **FY76:** **TOTAL: \$13,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hall, W. B. MSFC/King, H. M. 47-Materials Engr

NSG 1231 **Mississippi State University** **2673**
 Flight test evaluation of a method to determine the level flight performance of propeller driven aircraft
Period *Obligations*
 10/01/75-09/30/76 **FY76: \$26,369** **TOTAL: \$26,369**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cross, E. J., Jr. LARC/Hall, A. W. 41-Aero Engr
 Boatwright, D. W. LARC/Fisher, B. D.

NGL 25-001-040 **Mississippi State University** **2668**
 Interdisciplinary program in earth resource and environmental research
Period *Obligations*
 05/07/71-01/01/75 **FY76:** **TOTAL: \$100,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brown, L. R. HQ-P/Redding, E. R. 39-Env Sci, NEC
 MSFC/Kent, M. I.

NSG 1242 **Mississippi State University** **2674**
 Automatic mesh refinement for numerical solution of flows with strong shocks
Period *Obligations*
 10/01/75-09/30/76 **FY76: \$20,000** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Thompson, J. F. LARC/Weilmuenster, K. J. 21-Mathematics
 Warsi, Z. U.

NGL 25-001-054 **Mississippi State University** **2669**
 Application of remotely sensed data to state and regional problems
Period *Obligations*
 11/01/73-10/31/78 **FY76: \$100,000** **TOTAL: \$400,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, W. F. HQ-P/Vitale, J. A. 39-Env Sci, NEC
 MSFC/McDonough, G. F.

NSG 1249 **Mississippi State University** **2675**
 Flight test of a wing stall sensor and evaluation of its application to an aircraft stall deterrent system
Period *Obligations*
 09/15/75-08/14/76 **FY76: \$22,000** **TOTAL: \$22,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bennett, A. G., Jr. LARC/Harris, R. L. 41-Aero Engr
 Owens, J. K.

NGR 25-001-050 **Mississippi State University** **2670**
 Stiffness and damping of inherently compensated gas thrusting bearing with finite square geometry
Period *Obligations*
 01/30/73-12/31/75 **FY76:** **TOTAL: \$25,317**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stiffler, A. K. LERC/Fleming, D. P. 46-Mech Engr
 LERC/Cunningham, R. E.

NSG 1284 **Mississippi State University** **2676**
 An investigation of handling qualities of current sailplanes
Period *Obligations*
 02/15/76-02/14/77 **FY76: \$25,567** **TOTAL: \$25,567**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bennett, A. G. LARC/Gera, J. 41-Aero Engr

MISSISSIPPI (Continued)

NSG 3111 Mississippi State University 2677

| Analysis of pressurized gas squeeze film | | |
|--|------------------------|-----------------|
| Period | Obligations | |
| 07/01/76-06/30/77 | FY76: \$10,000 | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stiffler, A. K. | LERC/Fleming, D. P. | 46-Mech Engr |
| | LERC/Cunningham, R. E. | |

NSG 8009 Mississippi Valley State Univ. 2678

Biological indicators for monitoring the water quality of MTF canals system

| Period | Obligations |
|-------------------|----------------------------------|
| 04/25/74-06/25/76 | FY76: TOTAL: \$44,521 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Sethi, S. L. | MSFC/Wolverton, B. C. 51-Biology |
| | MSFC/Kent, M. I. |

NAS 3-19431 University of Mississippi - University 2679

Study of atmosphere absorption of high frequency noise

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/21/75-06/20/76 | FY76: \$1,605 | TOTAL: \$128,269 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Shields, F. D. | LERC/Gutierrez, O. A. | 41-Aero Engr |
| Bass, H. E. | | |

NAS13-23 University of Southern Mississippi 2680

Water hyacinths study

| <i>Period</i> | <i>Obligations</i> |
|----------------------|---|
| 10/20/75-10/21/76 | FY76: \$5,000 TOTAL: \$5,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Wolverton, V. C. | CASE Category NSTL/Stocks, P. 51-Biology |

NGL 25-005-007 University of Southern Mississippi 2681

Remote sensing study of land use & sedimentation in Rose Barnett Reservoir, Jackson, Mississippi area

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 02/15/72-04/30/76 | FY76: TOTAL: \$150,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Pinson, J. W. | HO-P/Vitale, J. A. 39-Env Sci, NEC |

NGR 25-005-005 University of Southern Mississippi 2682

Novel diacids & dianhydrides as polymer precursors

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 06/09/71-12/31/76 | FY76: TOTAL: \$175,050 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Thames, S. F. | LARC/Johnston, N. J. 12-Chemistry |

NSG 1285 University of Southern Mississippi • 2683

Enhancement of mass spectra by deconvolution

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/76-11/30/76 | FY76: \$4,887 | TOTAL: \$4,887 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rayborn, G. H. | LARC/Wood, G. M. | 13-Physics |

MISSOURI

NGL 26-006-021 Saint Louis University 2684

Computer method for redesigning and nonlinear analysis of a redundant complex structure

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/04/69-11/30/75 | FY76: | TOTAL: \$111,495 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Long, C. A. | LARC/Sobieszczanski, J. | 41-Aero Engr |
| Rhodes, J. L. | | |

NGR 26-006-039 Saint Louis University 2685

Evaluation of cutaneous sensitivity

| Period | Obligations |
|-------------------|---------------------------------------|
| 08/23/71-04/30/77 | FY76: \$2,500 TOTAL: \$33,091 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Van Beaumont, W. | ARC/Greenleaf, J. E. 53-Other Medical |

NGR 26-006-042 Saint Louis University 2686

Reinterpretation of Marine 9 IRIS data

| <i>Period</i> | <i>Obligations</i> |
|----------------------|--|
| 10/03/73-02/29/76 | FY76: TOTAL: \$43,917 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Pallman, A. J. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. |

NSG 2023 Saint Louis University 2687

Monitoring of local sweating response with the onset of motion sickness

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/74-11/31/76 | FY76: \$4,871 | TOTAL: \$17,671 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Van Beaumont, W. | ARC/Anliker, J. E. | 53-Other Medical |

NAS 5-20818 University of Missouri - Columbia 2688

Applications of airborne lidar measurement study

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/29/75-08/15/76 | FY76: \$5,000 | TOTAL: \$54,586 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Schuster, B. G. | GSFC/Curran, R. J. | 31-Atmos Sci |

NAS 5-20826 University of Missouri - Columbia 2689

Detection and synchronization in complex space communication links

| | |
|----------------------|--|
| <i>Period</i> | <i>Obligations</i> |
| 01/15/75-08/31/75 | FY76: TOTAL: \$19,850 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> |
| Noack, T. L. | GSFC/Poland, W. B., Jr. CASE Category 45-Elec Engr |

NAS 8-31150 University of Missouri - Columbia 2690

Research study of microphysical processes in atmospheric clouds

| Period | Obligations |
|-------------------|----------------------------------|
| 02/11/75-09/15/76 | FY76: TOTAL: \$26,909 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Plummer, P. L. | MSFC/Smith, R. E. 31-Atmos Sci |
| Hale, B. N. | MSFC/Hill, C. K. |

NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)

NAS 8-31767 **University of Missouri - Columbia** **2691**
 Application transfer activity in Missouri
Period *Obligations*
 01/05/76-01/04/77 FY76: \$26,200 **TOTAL: \$26,200**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Barr, P. J. MSFC/Paludan, C. T. 39-Env Sci, NEC
 Johannsen, C. J. MSFC/Daniels, J. L., Jr.

NAS 8-31849 **University of Missouri - Columbia** **2692**
 Cloud physics laboratory science simulator
Period *Obligations*
 04/29/76-04/29/77 FY76: \$75,000 **TOTAL: \$75,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dunipace, K. R. MSFC/Smith, R. E. 31-Atmos Sci

NCA 2-450604 **University of Missouri - Columbia** **2693**
 Investigation of measurement errors in laser Doppler anemometer systems
Period *Obligations*
 06/01/76-05/31/77 FY76: \$11,710 **TOTAL: \$11,710**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miles, J. B. ARC/Johnson, D. A. 45-Elec Engr

NGL 26-004-021 **University of Missouri - Columbia** **2694**
 Effects of radiation on gastro-intestinal function and cyclic turnover of intestinal epithelium
Period *Obligations*
 07/13/65-01/31/77 FY76: \$20,000 **TOTAL: \$350,764**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Musacchia, X. J. ARC/Holton, E. M. 51-Biology

NGR 26-001-018 **University of Missouri - Kansas City** **2695**
 Luminescence of nucleic acids and dyes
Period *Obligations*
 09/01/74-09/06/76 FY76: **TOTAL: \$19,904**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Millich, F. ARC/Ginoza, H. S. 12-Chemistry

NAS 8-31538 **University of Missouri - Rolla** **2696**
 Preliminary aerosol generator design studies
Period *Obligations*
 06/09/75-07/31/76 FY76: **TOTAL: \$27,389**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stampfer, J. F., Jr. MSFC/Smith, R. E. 13-Physics
 MSFC/Schrick, B. J.

NAS 9-14848 **University of Missouri - Rolla** **2697**
 Development and verification of simulation models for analyzing orbiter digital communication and data links and onboard monitoring parameter correlations
Period *Obligations*
 01/01/76-08/31/77 FY76: \$29,600 **TOTAL: \$29,600**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tranter, W. H. JSC/Dawson, C. T. 45-Elec Engr

NCA 2-450501 **University of Missouri - Rolla** **2698**
 Structure properties of graphite fiber-composites
Period *Obligations*
 07/01/74-06/30/75 FY76: **TOTAL: \$9,731**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Levenson, L. L. ARC/Zill, L. P. 47-Materials Engr

NCA 2-450601 **University of Missouri - Rolla** **2699**
 Carbon nickel bounding mechanism
Period *Obligations*
 08/01/75-07/31/76 FY76: \$9,990 **TOTAL: \$9,990**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 James, W. J. ARC/Zill, L. P. 47-Materials Engr

NCA 2-450602 **University of Missouri - Rolla** **2700**
 Atomistic structure and electronic properties
Period *Obligations*
 07/01/75-12/31/75 FY76: \$9,128 **TOTAL: \$9,128**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Levenson, L. L. ARC/Zill, L. P. 13-Physics

NCA 2-450603 **University of Missouri - Rolla** **2701**
 Study of gas/solid co-adsorption on tungsten surfaces
Period *Obligations*
 01/01/76-06/30/76 FY76: \$8,850 **TOTAL: \$8,850**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Levenson, L. L. ARC/Zill, L. P. 47-Materials Engr

NGR 26-004-097 **University of Missouri - Rolla** **2702**
 Research in bioenvironmental systems
Period *Obligations*
 04/17/72-08/31/76 FY76: **TOTAL: \$59,878**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mills, J. B. ARC/Quattrone, P. D. 59-Life Sci, NEC

NSG 1050 **University of Missouri - Rolla** **2703**
 Structural-acoustic response and interior noise levels of fuselage structures
Period *Obligations*
 09/01/74-12/31/76 FY76: \$29,606 **TOTAL: \$59,555**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Koval, L. R. LARC/Mixson, J. S. 41-Aero Engr
 LARC/Stephens, D. G.

NSG 3113 **University of Missouri - Rolla** **2704**
 Theoretical study of starved elastohydrodynamic lubrication of line contacts with a detailed treatment of inlet and exit flow regions
Period *Obligations*
 07/01/76-06/31/77 FY76: \$10,850 **TOTAL: \$10,850**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Medrow, R. A. LERC/Wedeven, L. D. 46-Mech Engr

NASA'S UNIVERSITY PROGRAM
MISSOURI (Continued)

NAS 1-13889 **Washington University** **2705**
Viking/Lander imaging studies
Period *Obligations*
05/05/75-03/31/77 FY76: \$5,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arvidson, R. E. LARC/Williams, T. S., Jr. 39-Env Sci, NEC
LARC/Glenney, W. R.

NAS 2-7613 **Washington University** **2706**
Lifter rotor random modes and vibration
Period *Obligations*
07/01/73-06/30/76 FY76: \$45,414 TOTAL: \$258,058
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hohenemser, K. H. ARC/Morse, H. A. 41-Aero Engr
Prelewicz, D. A. ARC/Statler, I. C.
Yin, S. K.

NAS 5-20680 **Washington University** **2707**
Earth observation data management system
Period *Obligations*
08/23/74-08/31/76 FY76: \$190,000 TOTAL: \$423,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morgan, R. P. GSFC/Quann, J. J. 99-Multi-Discip
Eastwood, L. F.
Hill, C. T.

NAS 8-27976 **Washington University** **2708**
Design, development and operation of a heavy nuclei experiment under the HEAO program
Period *Obligations*
06/16/72-07/15/80 FY76: \$66,750 TOTAL: \$271,754
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Israel, M. H. MSFC/Krome, H. O. 11-Astronomy
MSFC/Cochran, J.

NGL 26-008-054 **Washington University** **2709**
Application of satellite communications to educational development
Period *Obligations*
10/13/69-08/31/75 FY76: TOTAL: \$645,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Morgan, R. P. HQ-P/Redding, E. R. 99-Multi-Discip

NGL 26-008-057 **Washington University** **2710**
Development of solar wind shock models with tensor plasma pressure for data analysis
Period *Obligations*
12/29/69-12/31/75 FY76: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Abrahamshrauner, B. HQ-ST/Schmerling, E. R. 13-Physics

NGL 26-008-065 **Washington University** **2711**
Lunar sample analysis
Period *Obligations*
02/01/71-01/31/79. FY76: \$302,426 TOTAL: \$1,832,769
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, R. M. JSC/Harris, J. W. 13-Physics

NGR 26-008-001 **Washington University** **2712**
Determination of characteristics of high altitude primary cosmic radiation at low latitudes
Period *Obligations*
09/01/61-10/31/76 FY76: \$115,000 TOTAL: \$1,278,281
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Klarmann, J. HQ-SA/Sofia, S. 11-Astronomy
Israel, M. H. HQ-SA/Opp, A. G.

NSG 1016 **Washington University** **2713**
High resolution ultrasonic sensor for observation of particles in fluids
Period *Obligations*
03/15/74-03/14/77 FY76: \$39,456 TOTAL: \$103,397
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Miller, J. G. LARC/Heyman, J. S. 13-Physics
LARC/Hendricks, H. D.

NSG 1084 **Washington University** **2714**
Imaging natural material with a planetary lander quasi-microscope
Period *Obligations*
07/01/74-08/31/77 FY76: TOTAL: \$28,741
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arvidson, R. E. LARC/Kelly, W. L., IV 32-Geological Sci

NSG 1157 **Washington University** **2715**
Damage repair in composites
Period *Obligations*
03/10/75-03/09/76 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wu, E. M. LARC/Deaton, J. W. 46-Mech Engr
LARC/Hoffman, E. L.

NSG 7016 **Washington University** **2716**
Lunar data analysis and synthesis program on lunar surface dynamics
Period *Obligations*
12/01/73-01/31/79 FY76: \$162,547 TOTAL: \$285,684
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hohenberg, C. M. HQ-SM/Stuartalexander, D. E. 32-Geological Sci
Drozd, R. HQ-SM/Flinn, E. A.
Walker, R.

NSG 7087 **Washington University** **2717**
Computerized analysis of Martian crater and aeolian feature data
Period *Obligations*
08/01/74-07/31/76 FY76: \$20,881 TOTAL: \$30,792
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arvidson, R. E. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NASA'S UNIVERSITY PROGRAM NEVADA (Continued)

NSG 2140 University of Nevada - Las Vegas 2730

Prediction of unsteady airloads in two dimensional subsonic compressible flow

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 06/01/76-05/31/77 | FY76: \$18,360 TOTAL: \$18,360 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Fromme, J. A. | ARC/Davis, S. S. | 41-Aero Engr |
| Goldberg, M. A. | ARC/Coe, C. F. | |

NAS 8-31441 University of Nevada - Reno 2731

Zero-8 cloud drop coalescence experiment

| Period | Obligations | |
|-------------------|--------------------------------|------------------|
| 04/21/75-07/20/76 | FY76: \$30,077 TOTAL: \$54,077 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Telford, J. W. | MSFC/Smith, R. E. | 19-Phys Sci, NEC |
| | MSFC/Schrick, B. J. | |

NAS 8-31780 University of Nevada - Reno 2732

Atmospheric cloud physics laboratory science simulator study

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 01/05/76-11/04/76 | FY76: \$20,000 TOTAL: \$20,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Squires, P. | MSFC/Smith, R. E. | 31-Atmos Sci |
| | MSFC/Anderson, B. J. | |

NEW HAMPSHIRE

NGR 30-001-041 Dartmouth College 2733

Processing and analysis of data from VLF-LF experiments on the OGO-4 and OGO-6 spacecraft and continuation of studies at ground stations

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 10/02/72-06/31/76 | FY76: \$30,000 TOTAL: \$235,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Morgan, M. G. | HQ-ST/Schmerling, E. R. | 13-Physics |
| | HQ-ST/Cauffman, D. P. | |

NSG 5014 Dartmouth College 2734

Geological applications of ERTS data

| Period | Obligations | |
|-------------------|----------------------------------|-----------------|
| 07/01/74-10/22/76 | FY76: \$320,205 TOTAL: \$484,605 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Huke, R. E. | GSFC/Jastrow, R. | 39-Env Sci, NEC |
| Malmstrom, V. | GSFC/Ungar, S. G. | |
| Oiber, S. T. | | |

NSG 7097 Dartmouth College 2735

Magnetopause structure from satellite observations

| Period | Obligations | |
|-------------------|-------------------------|---------------|
| 10/08/74-06/30/75 | FY76: TOTAL: \$20,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sonnerup, B. | HQ-ST/Schmerling, E. R. | 11-Astronomy |

NAS 5-11276 University of New Hampshire 2736

Design, testing, & calibration of GSF Pioneer F & G cosmic ray unit

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 02/11/70-06/30/76 | FY76: \$37,870 TOTAL: \$181,870 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Webber, W. R. | GSFC/Teegarden, B. J. | 11-Astronomy |
| Suri, A. N. | GSFC/Ramaty, R. | |

NAS 5-11694 University of New Hampshire 2737

Low energy electron-proton experiment for ATS-F

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 05/01/69-05/30/76 | FY76: TOTAL: \$510,726 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Arnoldy, R. L. | GSFC/Wales, R. O. | 11-Astronomy |
| | GSFC/Corrigan, J. P. | |

NAS 5-20884 University of New Hampshire 2738

Advanced gamma ray balloon experiment ground checkout and data analysis

| Period | Obligations | |
|-------------------|-------------------------------|---------------|
| 11/19/74-04/30/76 | FY76: \$1,223 TOTAL: \$16,232 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chupp, E. L. | GSFC/Orwig, L. E. | 13-Physics |

NAS 5-23493 University of New Hampshire 2739

Study effort for solar gamma ray experiment for the solar maximum mission

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 03/26/76-09/30/76 | FY76: \$100,000 TOTAL: \$100,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chupp, E. L. | GSFC/Donley, J. L. | 11-Astronomy |

NGL 30-002-018 University of New Hampshire 2740

Investigation of energy levels in foil excited atomic beams

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 03/15/65-06/30/76 | FY76: TOTAL: \$172,355 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chupp, E. L. | HQ-ST/Hunter, W. R. | 13-Physics |

NGL 30-002-021 University of New Hampshire 2741

Investigation and development of techniques for solar neutron and gamma ray detection

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 02/28/66-12/31/76 | FY76: \$57,370 TOTAL: \$932,370 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chupp, E. L. | HQ-SA/Sofia, S. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

NGR 30-002-052 University of New Hampshire 2742

Research program in area of cosmic ray and X-ray astronomy

| Period | Obligations | |
|-------------------|----------------------------------|---------------|
| 02/12/70-09/31/76 | FY76: \$100,000 TOTAL: \$760,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Webber, W. R. | HQ-SA/Pellerin, C. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

NASA'S UNIVERSITY PROGRAM **NEW HAMPSHIRE (Continued)**

NGR 30-002-054 **University of New Hampshire** **2743**
Auroral particle measurements
Period *Obligations*
09/12/69-06/30/76 FY76: \$32,500 **TOTAL: \$291,811**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arnoldy, R. L. HQ-ST/Schmerling, E. R. 13-Physics

NGR 30-002-104 **University of New Hampshire** **2744**
Gamma ray detector on OSO-7
Period *Obligations*
12/04/73-08/31/76 FY76: \$21,509 **TOTAL: \$132,044**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chupp, E. L. HQ-ST/Timothy, A. F. 13-Physics

NEW JERSEY

NGL 31-006-010 **Fairleigh Dickinson University** **2745**
Lunar and planetary spectral reflectivity
Period *Obligations*
08/08/72-02/29/77 FY76: **TOTAL: \$141,400**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, J. B. HQ-SM/Kosofsky, L. J. 32-Geological Sci
HQ-SM/Roberson, F. I.

NGL 31-006-011 **Fairleigh Dickinson University** **2746**
Lunar sample analysis
Period *Obligations*
09/19/72-01/31/77 FY76: **TOTAL: \$242,682**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Adams, J. B. JSC/Harris, J. W. 13-Physics

NSG 7047 **Fairleigh Dickinson University** **2747**
Spectral reflectance CF/lunar samples to telescopic spectra of
unvisited parts of the moon
Period *Obligations*
02/01/74-01/31/75 FY76: **TOTAL: \$25,700**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hartung, J. B. HQ-SM/Kosofsky, L. J. 32-Geological Sci
HQ-SM/Roberson, F. I.

NCA 2-350501 **Jersey City State College** **2748**
Analysis of infrared stellar spectra
Period *Obligations*
06/16/75-08/29/75 FY76: **TOTAL: \$4,060**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bailey, W. L. ARC/Zill, L. P. 11-Astronomy

NCA 2-350601 **Jersey City State College** **2749**
Analysis of infrared stellar spectra
Period *Obligations*
06/21/76-08/25/76 FY76: \$4,550 **TOTAL: \$4,550**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bailey, W. L. ARC/Ericson, E. F. 11-Astronomy

NAS 1-9705 **Princeton University** **2750**
Participation in the science planning for the Viking 1975 missions
in the area of magnetic properties
Period *Obligations*
04/03/70-03/31/77 FY76: \$43,050 **TOTAL: \$152,643**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hargraves, R. B. LARC/Williams, T. S., Jr. 19-Phys Sci, NEC
LARC/Glenny, W. R.

NAS 1-13502 **Princeton University** **2751**
In-flight evaluation of decoupler longitudinal controls for a STOL
transport aircraft
Period *Obligations*
08/19/74-04/30/76 FY76: **TOTAL: \$132,657**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sockel, E. LARC/Miller, G. K., Jr. 41-Aero Engr
Ellis, D. R. LARC/Queijo, M. J.

NAS 2-7350 **Princeton University** **2752**
STOL approach & landing research
Period *Obligations*
03/02/73-06/30/76 FY76: \$49,405 **TOTAL: \$323,289**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seckel, E. ARC/Franklin, J. A. 41-Aero Engr

NAS 5-1810 **Princeton University** **2753**
Design, development, fabrication & testing of orbiting astronomical
observatory experiment
Period *Obligations*
06/08/72-12/01/78 FY76: \$678,129 **TOTAL: \$18,235,727**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Kupperian, J. E. 11-Astronomy

NAS 5-20833 **Princeton University** **2754**
Large high resolution integrating TV sensor for astronomical
applications
Period *Obligations*
10/23/74-08/31/76 FY76: \$212,716 **TOTAL: \$462,782**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lowrance, J. L. GSFC/Sobieski, S. 11-Astronomy
GSFC/Kelsall, T. N.

NAS 5-22360 **Princeton University** **2755**
Spectroscopy using the one meter ultraviolet optical telescope
for spacelab astronomy missions
Period *Obligations*
04/18/75-12/31/76 FY76: \$10,873 **TOTAL: \$19,277**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jenkins, E. B. GSFC/Leckrone, D. S. 32-Geological Sci

NAS 5-22482 **Princeton University** **2756**
Investigation of impurities in magnesium fluoride
Period *Obligations*
06/27/75-02/27/76 FY76: **TOTAL: \$5,830**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spitzer, L., Jr. GSFC/Kelsall, T. N. 12-Chemistry

NASA'S UNIVERSITY PROGRAM
NEW JERSEY (Continued)

NAS 5-22989 Princeton University 2757
70 mm/sec TV camera
Period Obligations
02/11/76-02/10/77 FY76: \$200,000 TOTAL: \$200,000
Prin. Invest. NASA Tech. Officer CASE Category
Morton, D. C. GSFC/Sobieski, S. 11-Astronomy
Lowrance, J. L. GSFC/Tycz, M.

NAS 5-23284 Princeton University 2758
Instrument definition study for the high resolution imaging camera
for large space telescope
Period Obligations
07/20/73-06/30/76 FY76: TOTAL: \$27,411
Prin. Invest. NASA Tech. Officer CASE Category
Danielson, R. E. GSFC/Sobieski, S. 11-Astronomy
GSFC/Meese, K. J.

NAS 5-23386 Princeton University 2759
Parametric test and evaluation system
Period Obligations
04/29/76-06/29/77 FY76: \$144,841 TOTAL: \$144,841
Prin. Invest. NASA Tech. Officer CASE Category
Lowrance, J. L. GSFC/Tycz, M. 11-Astronomy

NAS 5-23387 Princeton University 2760
Secondary electron conduction tube optimization and standardiza-
tion program
Period Obligations
06/07/76-08/07/77 FY76: \$327,271 TOTAL: \$327,271
Prin. Invest. NASA Tech. Officer CASE Category
Lowrance, J. L. GSFC/Tycz, M. 11-Astronomy

NAS 5-23576 Princeton University 2761
Orbital operations, data reduction and analysis, and OAO GUEST
investigator program
Period Obligations
09/01/76-08/31/77 FY76: \$103,106 TOTAL: \$103,106
Prin. Invest. NASA Tech. Officer CASE Category
Spitzer, L., Jr. GSFC/Kupperian, J. E. 11-Astronomy
Rogerson, J. B.

NGL 31-001-005 Princeton University 2762
Formation & stability of magnetogasdynamic front in a pitch
discharge
Period Obligations
09/24/62-09/30/78 FY76: \$160,000 TOTAL: \$2,262,912
Prin. Invest. NASA Tech. Officer CASE Category
Jahn, R. G. HQ-RP/Lazar, J. 42-Astro Engr
Clark, K. E.

NGL 31-001-007 Princeton University 2763
Theoretical & experimental studies of ultraviolet phenomena of
astronomical interest & galactic gas dynamics
Period Obligations
05/06/63-03/31/79 FY76: TOTAL: \$1,677,000
Prin. Invest. NASA Tech. Officer CASE Category
Spitzer, L., Jr. HQ-SA/Roman, N. G. 11-Astronomy
HQ-SA/Rosendhal, J. D.

NGL 31-001-146 Princeton University 2764
Boundary layer noise and panel flutter
Period Obligations
10/24/68-11/01/77 FY76: TOTAL: \$342,280
Prin. Invest. NASA Tech. Officer CASE Category
Dowell, E. H. LARC/Mixson, J. S. 41-Aero Engr

NGL 31-001-252 Princeton University 2765
Air traffic control technology
Period Obligations
11/15/71-10/31/78 FY76: \$70,000 TOTAL: \$320,000
Prin. Invest. NASA Tech. Officer CASE Category
Graham, D. LARC/Reid, H. J., Jr. 41-Aero Engr
LARC/Mace, W. D.

NGL 31-001-283 Princeton University 2766
Lunar sample analysis
Period Obligations
06/30/72-01/31/77 FY76: \$7,090 TOTAL: \$239,990
Prin. Invest. NASA Tech. Officer CASE Category
Hollister, L. S. JSC/Harris, J. W. 11-Astronomy

NGR 31-001-001 Princeton University 2767
Stratoscope II program
Period Obligations
02/12/70-09/30/75 FY76: TOTAL: \$2,740,925
Prin. Invest. NASA Tech. Officer CASE Category
Millich, F. HQ-SA/Roman, N. G. 11-Astronomy

NGR 31-001-152 Princeton University 2768
Analytical methods of trajectory analysis
Period Obligations
01/15/70-09/30/75 FY76: TOTAL: \$229,600
Prin. Invest. NASA Tech. Officer CASE Category
Lion, P. M. GSFC/Barbieri, R. W. 42-Astro Engr

NGR 31-001-197 Princeton University 2769
Three dimensional boundary layer effects on panel flutter
Period Obligations
03/25/70-10/31/76 FY76: \$87,425 TOTAL: \$325,655
Prin. Invest. NASA Tech. Officer CASE Category
Dowell, E. H. ARC/Gaspers, P. A., Jr. 41-Aero Engr

NGR 31-001-202 Princeton University 2770
Lunar retro-reflector ranging
Period Obligations
05/27/70-06/14/77 FY76: TOTAL: \$15,000
Prin. Invest. NASA Tech. Officer CASE Category
Dicke, R. H. HQ-SL/Strickland, A. T. 13-Physics

NASA'S UNIVERSITY PROGRAM NEW JERSEY (Continued)

NGR 31-001-242 **Princeton University** **2771**
A new spectroscopic technique utilizing the Fabry-Perot interferometer

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 07/13/72-03/31/77 | FY76: | TOTAL: \$201,817 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Smith, W. H. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NGR 31-001-267 **Princeton University** **2772**
Theoretical analysis of impact in composite plates

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/03/72-08/31/75 | FY76: | TOTAL: \$93,950 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dowell, E. H. | LERC/Chamis, C. C. | 41-Aero Engr |
| Kang, C. K. | LERC/Younger, C. L. | |

NGR 31-001-277 **Princeton University** **2773**
VTOL mathematical model designs for optimal control systems designs

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/20/72-11/30/76 | FY76: \$59,100 | TOTAL: \$249,803 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dukes, T. A. | ARC/Smith, G. A. | 41-Aero Engr |
| Durbin, E. J. | | |

NGR 31-001-306 **Princeton University** **2774**
High resolution spectrograph for the large space telescope

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 10/01/73-06/30/76 | FY76: | TOTAL: \$3,200 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Morton, D. C. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meese, K. J. | |

NGR 31-001-307 **Princeton University** **2775**
Fundamental and applied research on core engine combustion noise of aircraft engines

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/73-12/31/76 | FY76: | TOTAL: \$39,444 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Plett, E. G. | LERC/Stone, J. R. | 41-Aero Engr |
| Summerfield, M. | | |

NGR 31-001-312 **Princeton University** **2776**
Chemical laser action in low pressure metal flames

| Period | Obligations | |
|-------------------|--------------------------|-----------------|
| 10/01/73-09/30/75 | FY76: | TOTAL: \$45,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Glassman, I. | LERC/Dunning, J. W., Jr. | 12-Chemistry |
| Naegeli, D. W. | | |

NGR 31-001-328 **Princeton University** **2777**
Nuclear fission plasma characterization and applications analysis research

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 10/01/73-12/30/74 | FY76: | TOTAL: \$75,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Layton, J. P. | HQ-RR/Thom, K. | 13-Physics |
| Stoenescu, M. L. | LERC/Kaufman, S. J. | |

NSG 1070 **Princeton University** **2778**
Resonant Doppler velocimeter

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 07/01/74-08/31/76 | FY76: \$34,608 | TOTAL: \$86,659 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Miles, R. B. | LARC/Hunter, W. W., Jr. | 13-Physics |
| | LARC/Honaker, W. C. | |

NSG 1078 **Princeton University** **2779**
An exploratory flight investigation of lateral control nonlinearities and their effects on handling qualities

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/74-12/31/75 | FY76: | TOTAL: \$14,250 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Seckel, E. | LARC/Crane, H. L. | 41-Aero Engr |
| Ellis, D. R. | | |

NSG 1129 **Princeton University** **2780**
Conceptual design study of gas-core nuclear reactors

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 12/16/74-05/31/76 | FY76: | TOTAL: \$80,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stoenescu, M. L. | LARC/Hohl, F. | 49-Engr, NEC |
| Bogdonoff, S. M. | | |

NSG 1234 **Princeton University** **2781**
Simplified longitudinal control decoupling for light general aviation aircraft

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/75-01/31/77 | FY76: \$49,975 | TOTAL: \$49,975 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Seckel, E. | LARC/Crane, H. L. | 41-Aero Engr |

NSG 1253 **Princeton University** **2782**
Sound transmission analysis for determining interior sound levels

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/01/75-10/31/76 | FY76: \$34,625 | TOTAL: \$34,625 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dowell, E. H. | LARC/Mixson, J. S. | 41-Aero Engr |
| | LARC/Rucker, C. E. | |

NSG 2062 **Princeton University** **2783**
Studies of space colonization

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 01/01/75-10/01/76 | FY76: \$109,990 | TOTAL: \$137,430 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| O'Neill, G. K. | ARC/Johnson, R. D. | 99-Multi-Discip |
| | ARC/Chambers, A. B. | |

NASA'S UNIVERSITY PROGRAM

NEW JERSEY (Continued)

NSG 2108 **Princeton University** **2784**
Energy conversion by the photo catalytic generation of hydrogen

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$39,976 | TOTAL: \$39,976 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bottoms, W. R. | ARC/Billman, K. W. | 12-Chemistry |
| Miles, R. B. | ARC/Lee, G. | |

NSG 2114 **Princeton University** **2785**
Study of a small separated region generated by a 20 ramp at M-3

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 11/01/75-10/31/76 | FY76: \$31,570 | TOTAL: \$31,570 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bogdonoff, S. M. | ARC/Horstman, C. C. | 41-Aero Engr |
| | ARC/Marvin, J. G. | |

NSG 5063 **Princeton University** **2786**
Measurements of sec tube energetic charged particle induced background

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/01/75-09/30/76 | FY76: | TOTAL: \$22,031 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lowrance, J. L. | GSFC/Kelsall, T. N. | 49-Engr, NEC |
| Spitzer, L., Jr. | GSFC/Sobieski, S. | |

NSG 7053 **Princeton University** **2787**
Theoretical & laboratory planetary physics

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/01/74-09/30/76 | FY76: | TOTAL: \$82,982 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Danielson, R. E. | HQ-SL/Brunk, W. E. | 11-Astronomy |

NSG 7080 **Princeton University** **2788**
Study of elastic wave propagation in the moon

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 07/01/74-01/31/77 | FY76: \$51,342 | TOTAL: \$158,165 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Phinney, R. A. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| Dahlen, F. A. | HQ-SL/Flinn, E. A. | |
| Jordan, T. H. | | |

NSG 7088 **Princeton University** **2789**
Study of a 36-inch telescope sounding rocket payload

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 07/01/74-08/31/75 | FY76: | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schwartzchild, M. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NSG 7131 **Princeton University** **2790**
Efficient research and technology program formulation under conditions of risk and uncertainty

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 05/01/75-04/30/76 | FY76: \$7,462 | TOTAL: \$96,462 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dowell, E. H. | HQ-RM/Sanchez, E. L. | 99-Multi-Discip |

NSR 31-001-901 **Princeton University** **2791**
Ultraviolet spectrographic investigations by high altitude rocket flights

| Period | Obligations | |
|-------------------|--------------------|--------------------|
| 06/30/67-06/30/76 | FY76: \$182,000 | TOTAL: \$1,676,196 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lowrance, J. L. | HQ-SA/Roman, N. G. | 11-Astronomy |
| Spitzer, L., Jr. | HQ-SA/Ott, E. J. | |

NSG 2148 **Rutgers University - New Brunswick** **2792**
Seminar and research institute on Differential and Algebraic Geometry for Control Engineers

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/01/76-12/31/76 | FY76: \$17,990 | TOTAL: \$17,990 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hermann, R. | ARC/Doolin, B. F. | 49-Engr, NEC |

NSG 1314 **Rutgers University - Newark** **2793**
Three-body recombination in turbulent supersonic flow

| Period | Obligations | |
|---------------------|------------------------|-----------------|
| 06/07/76-06/06/77 | FY76: \$32,000 | TOTAL: \$32,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Johnson, J. A., III | LARC/Beach, H. L., Jr. | 13-Physics |
| | LARC/Huber, P. W. | |

NEW MEXICO

NGT 32-010-001 **New Mexico Highlands University** **2794**
Training of undergraduate students in sciences and engineering

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/74-05/31/77 | FY76: \$14,000 | TOTAL: \$42,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zenick, H. | HQ-P/Pohly, J. G. | 99-Multi-Discip |
| | HQ-U/Jenkins, H. G. | |

NSG 804 **New Mexico Highlands University** **2795**
Study of bicyclic and cage compounds

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/75-05/31/76 | FY76: | TOTAL: \$16,417 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Clark, R. D. | KSC/Bryan, C. J. | 12-Chemistry |
| | KSC/Gayle, J. B. | |

NAS 5-20916 **New Mexico Institute of Mining & Tech** **2796**
ERTS data follow-on investigation

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 02/27/75-05/27/76 | FY76: | TOTAL: \$19,784 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Vander Linden, K. | GSFC/Broderick, J. C. | 32-Geological Sci |

NASA'S UNIVERSITY PROGRAM NEW MEXICO (Continued)

NCA 5-43 **New Mexico Institute of Mining & Tech** **2797**
Maintenance of joint observatory for cometary research
Period *Obligations*
12/01/74-11/30/75 FY76: TOTAL: \$6,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hume, W. GSFC/Maran, S. P. 11-Astronomy

NCA 5-48 **New Mexico Institute of Mining & Tech** **2798**
Use of multichannel spectrometer for solar research
Period *Obligations*
05/23/75-12/31/75 FY76: TOTAL: \$1,950
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hume, W. GSFC/Maran, S. P. 19-Phys Sci, NEC

NCA 5-58 **New Mexico Institute of Mining & Tech** **2799**
Joint observatory for cometary research
Period *Obligations*
09/29/75-09/30/76 FY76: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hume, W. GSFC/Maran, S. P. 11-Astronomy
Moore, E.

NCA 5-59 **New Mexico Institute of Mining & Tech** **2800**
Use of multichannel spectrometer for solar research
Period *Obligations*
09/22/75-12/31/76 FY76: \$6,400 TOTAL: \$6,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hume, W. GSFC/Maran, S. P. 11-Astronomy

NAS 1-13586 **New Mexico State University - Las Cruces** **2801**
Operation of a two-station meteor patrol
Period *Obligations*
09/01/74-06/30/76 FY76: TOTAL: \$42,247
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beebe, R. F. LARC/Harvey, G. A. 11-Astronomy

NAS 2-8496 **New Mexico State University - Las Cruces** **2802**
Solar pointing Aerobee rocket system launch support
Period *Obligations*
08/01/74-07/31/77 FY76: \$170,000 TOTAL: \$336,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinberg, J. L. ARC/Van Ess, J. C. 99-Multi-Discip
Thomason, S. ARC/Chisel, D. M.

NAS 5-20681 **New Mexico State University - Las Cruces** **2803**
Field and analytical engineering support of the sounding rocket program
Period *Obligations*
07/26/74-01/31/77 FY76: \$703,499 TOTAL: \$1,438,499
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sayles, A., Jr. GSFC/Bissell, E. E., Jr. 19-Phys Sci, NEC
GSFC/Conrad, R. W.

NAS 6-2686 **New Mexico State University - Las Cruces** **2804**
Tone ranging/telemetry interferometer system
Period *Obligations*
11/21/75-06/20/76 FY76: \$87,826 TOTAL: \$87,826
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gammill, B. G. WFC/West, W. W. 46-Mech Engr
WFC/Bell, H. T.

NAS 9-95469 **New Mexico State University - Las Cruces** **2805**
Antenna design evaluation and study
Period *Obligations*
06/28/76-08/15/76 FY76: \$9,473 TOTAL: \$9,473
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Carver, K. JSC/Nitschke, H. A. 47-Materials Engr

NASW 2928 **New Mexico State University - Las Cruces** **2806**
Symposium on Aeronautics and Space to Motivate Minorities and Women Toward Science and Engineering
Period *Obligations*
04/09/76-06/30/76 FY76: \$23,039 TOTAL: \$23,039
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Alba, A. HQ-U/Monroe, R. 41-Aero Engr
Hernandez, J. W. JSC/Atkinson, J. D.

NAS10-7399 **New Mexico State University - Las Cruces** **2807**
Telemetry research & development in telemetry field services in support of unmanned launch operations
Period *Obligations*
12/02/70-12/01/74 FY76: TOTAL: \$1,665,226
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bumgarner, R. A. KSC/Schlimmer, G. E. 45-Elec Engr
Noda, T. T. KSC/MacKey, A. J.

NAS10-8712 **New Mexico State University - Las Cruces** **2808**
Research and development and technical operations support
Period *Obligations*
12/02/74-12/01/76 FY76: \$320,000 TOTAL: \$510,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable KSC/Schlimmer, G. E. 19-Phys Sci, NEC

NGL 32-003-001 **New Mexico State University - Las Cruces** **2809**
Photographic patrol and study of physical conditions on the moon and planets
Period *Obligations*
04/15/61-04/30/77 FY76: TOTAL: \$1,693,047
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beebe, R. F. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGL 32-003-069 **New Mexico State University - Las Cruces** **2810**
X-ray crystal reflectivity measurements
Period *Obligations*
05/01/72-05/31/75 FY76: TOTAL: \$13,203
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liefeld, R. J. HQ-SA/Roman, N. G. 11-Astronomy

NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)

NGT 32-003-750 New Mexico State University - Las Cruces 2811
 Training of undergraduate students in sciences and engineering

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/01/75-05/31/77 | FY76: \$7,000 | TOTAL: \$14,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Zimmerman, R. M. | HQ-P/Pohly, J. G. | 49-Engr, NEC |
| | HQ-U/Jenkins, H. G. | |

NASW 2633 University of New Mexico 2818
 Operation of the technology application center

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/74-06/30/75 | FY76: | TOTAL: \$299,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-KT/Bivins, R. G. | 99-Multi-Discip |

NSG 3069 New Mexico State University - Las Cruces 2812
 Interferogram analysis of periodic spectra

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/15/75-05/14/77 | FY76: | TOTAL: \$73,316 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Armstrong, R. L. | LERC/Salzman, J. A. | 13-Physics |

NASW 2805 University of New Mexico 2819
 Operation of a NASA Industrial Applications Center

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/11/75-06/30/76 | FY76: \$227,984 | TOTAL: \$227,984 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-KT/Bivins, R. G. | 99-Multi-Discip |

NSG 3092 University of Albuquerque 2813
 In situ analysis of trace metal ion pollutants in natural waters

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/05/76-01/04/77 | FY76: \$33,160 | TOTAL: \$33,160 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Urzendowski, R. M. | LERC/Fordyce, J. S. | 12-Chemistry |

NCA 2-510502 University of New Mexico 2820
 Control mechanism of metabolism during poikilothermia

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/01/75-12/31/75 | FY76: | TOTAL: \$1,900 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Riedesel, M. L. | ARC/Zill, L. P. | 51-Biology |

NAS 1-11855 University of New Mexico 2814
 Participation in science planning for Viking 1975 missions in area of inorganic chemistry

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/18/72-03/31/77 | FY76: \$14,953 | TOTAL: \$42,488 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Keil, K. | LARC/Williams, T. S., Jr. | 12-Chemistry |
| | LARC/Glenny, W. R. | |

NCA 5-31 University of New Mexico 2821
 Research on comets

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/16/74-12/31/75 | FY76: \$543 | TOTAL: \$5,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Regener, V. H. | GSFC/Hyder, C. L. | 31-Atmos Sci |

NAS 3-18522 University of New Mexico 2815
 Technical search and processing of abstracts into documents for five specific fields of energy

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/16/74-08/15/75 | FY76: | TOTAL: \$15,522 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Long, W. W. | LERC/Hyland, R. F. | 49-Engr, NEC |

NCA 5-32 University of New Mexico 2822
 Research on solar phenomena

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/16/74-09/30/75 | FY76: | TOTAL: \$2,800 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Regener, V. H. | GSFC/Jones, H. P. | 31-Atmos Sci |

NAS 3-19434 University of New Mexico 2816
 Technical search and processing of abstracts into documents for eight specific fields of energy

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/08/75-10/07/76 | FY76: \$6,026 | TOTAL: \$6,026 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Burch, E. | LERC/Hyland, R. F. | 49-Engr, NEC |

NCA 5-34 University of New Mexico 2823
 Research on hydromagnetic phenomena in comet tails

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/16/74-12/31/75 | FY76: | TOTAL: \$3,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Regener, V. H. | GSFC/Hyder, C. L. | 31-Atmos Sci |

NASW 2399 University of New Mexico 2817
 Operation of a regional dissemination center in the technology application center

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/22/72-06/01/74 | FY76: | TOTAL: \$485,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Shinnick, W. A. | HQ-KT/Holley, H. L. | 99-Multi-Discip |

NCA 5-36 University of New Mexico 2824
 Research on photoelectric photometry of the visible counterparts of celestial X-ray sources

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 12/15/74-12/31/75 | FY76: | TOTAL: \$20,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| John, R. S. | GSFC/Maran, S. P. | 31-Atmos Sci |

NASA'S UNIVERSITY PROGRAM NEW MEXICO (Continued)

NCA 5-41 University of New Mexico 2825
Theoretical study of two excited electronic states of hydrogen molecular ion H₂

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 02/17/75-07/15/75 | FY76: | TOTAL: \$7,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Beckel, C. L. | GSFC/Temkin, A. | 13-Physics |

NCA 5-55 University of New Mexico 2826
Molecular ion spectra research

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 09/15/75-08/31/76 | FY76: \$7,000 | TOTAL: \$7,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Beckel, C. L. | GSFC/Temkin, A. | 11-Astronomy |

NCA 5-56 University of New Mexico 2827
Solar physics research

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 09/15/75-12/31/76 | FY76: \$1,200 | TOTAL: \$1,200 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Regener, V. H. | GSFC/Jones, H. P. | 11-Astronomy |

NCA 5-57 University of New Mexico 2828
Cosmic X-ray sources investigations

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/15/75-12/31/76 | FY76: \$19,500 | TOTAL: \$19,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| St John, R. | GSFC/Maran, S. P. | 11-Astronomy |

NGL 32-004-011 University of New Mexico 2829
Comparative study of lunar craters and terrestrial volcano-tectonic depressions in rhyolite ash-flow plateaus

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 10/12/64-05/31/77 | FY76: | TOTAL: \$395,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Elston, W. E. | HQ-SM/Hanley, J. B. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NGL 32-004-042 University of New Mexico 2830
The proof-of-concept approach to the design and management of public policy problems

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/19/68-06/30/75 | FY76: | TOTAL: \$470,400 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rosenthal, A. H. | HQ-P/Morris, J. D. | 75-Political Sci |

NGL 32-004-063 University of New Mexico 2831
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/06/71-01/31/79 | FY76: \$94,600 | TOTAL: \$608,385 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Keil, K. | JSC/Harris, J. W. | 12-Chemistry |

NGL 32-004-064 University of New Mexico 2832
Mineralogy and chemistry of polymict-brecciated stone meteorites

| Period | Obligations | |
|-------------------|-------------------------------|-------------------|
| 06/14/71-02/28/79 | FY76: \$78,700 | TOTAL: \$312,892 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Keil, K. | HQ-SL/Stuartaalexander, D. E. | 32-Geological Sci |
| Fodor, R. V. | HQ-SL/Flinn, E. A. | |
| Inz, P. R. | | |

NGR 32-004-026 University of New Mexico 2833
Numerical study of the flow in the vortex rate sensor

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 05/27/66-12/31/76 | FY76: | TOTAL: \$75,918 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Richards, C. G. | LARC/Hellbaum, R. F. | 46-Mech Engr |

NGR 32-004-062 University of New Mexico 2834
Search for evidence of dynamic process

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 06/22/70-12/31/76 | FY76: \$20,000 | TOTAL: \$130,250 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Elston, W. E. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Wahmann, R. | |

NGR 32-004-068 University of New Mexico 2835
Thermal radiation from interplanetary dust

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 12/15/71-07/31/75 | FY76: | TOTAL: \$75,810 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Peterson, A. W. | HQ-SA/Bogges, N. W. | 11-Astronomy |

NGR 32-004-086 University of New Mexico 2836
Correlation between interplanetary magnetic field, solar wind, and cosmos

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 08/15/73-08/14/76 | FY76: | TOTAL: \$20,560 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ahluwalia, H. S. | HQ-SA/Calahan, H. D. | 13-Physics |

NGT 32-004-750 University of New Mexico 2837
Training of undergraduate students in sciences and engineering

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/75-05/31/77 | FY76: \$7,000 | TOTAL: \$14,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Theye, L. A. | HQ-P/Pohly, J. G. | 49-Engr, NEC |
| | HQ-U/Jenkins, H. G. | |

NSG 2052 University of New Mexico 2838
Photography study of infrared airglow from C-990 airborne laboratory during space shuttle simulation

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 10/15/74-10/15/76 | FY76: \$24,080 | TOTAL: \$54,580 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Peterson, A. W. | ARC/Haughney, L. C. | 31-Atmos Sci |
| Kieffaber, L. M. | | |

NASA'S UNIVERSITY PROGRAM
NEW MEXICO (Continued)

NSG 7066 **University of New Mexico** **2839**
 Geologic interpretation of lunar photography
Period *Obligations*
 06/01/74-01/31/76 FY76: TOTAL: \$11,690
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Elston, W. E. HQ-SM/Hanley, J. B. 32-Geological Sci
 HQ-SM/Roberson, F. I.

NSG 902 **Western New Mexico U** **2840**
 Investigation of acceptance of solar heating and cooling in the
 building industry in New Mexico
Period *Obligations*
 08/01/75-07/31/76 FY76: \$27,934 TOTAL: \$27,934
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lundahl, C. R. JPL/Bourke, R. D. 62-Social Aspects

NEW YORK

NAS 5-22529 **Adelphi University** **2841**
 Study on increased thermal efficiency and reduction of particulate
 emissions of furnace
Period *Obligations*
 07/15/75-05/15/76 FY76: \$51,213 TOTAL: \$51,213
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Doohar, J. P. GSFC/Tarleton, M. J. 39-Env Sci, NEC

NSG 2088 **Adelphi University** **2842**
 Study of the thin turbulent shear layers on the optical transfer
 function of an imaging system
Period *Obligations*
 09/01/75-04/30/77 FY76: \$24,469 TOTAL: \$24,469
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Steinmetz, W. J. ARC/Buell, D. A. 12-Chemistry

NAS 8-31711 **Alfred University** **2843**
 Space processing application, shuttle payloads requirements
 specifications study
Period *Obligations*
 09/26/75-06/01/76 FY76: \$1,000 TOTAL: \$1,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lacourse, W. C. MSFC/Taylor, K. R. 19-Phys Sci, NEC
 MSFC/Poe, J. W.

NAS 5-20961 **Brooklyn College** **2844**
 Heavy modeling of an urbanized estuary
Period *Obligations*
 02/24/75-09/23/76 FY76: TOTAL: \$16,351
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weil, C. B. GSFC/Schnetzler, C. C. 75-Political Sci

NCA 2-75602 **Brooklyn College** **2845**
 Influence of weightlessness on the aging process
Period *Obligations*
 06/15/76-06/14/77 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cottrell, S. F. ARC/Miquel, J. 51-Biology

NSG 1166 **Brooklyn College** **2846**
 Theoretical studies in medium and high-energy atomic physics
Period *Obligations*
 06/16/75-12/15/76 FY76: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Franco, V. LARC/Wilson, J. W. 13-Physics

NAS 5-22392 **City College of New York** **2847**
 Numerical models of ocean circulation
Period *Obligations*
 06/27/75-06/27/76 FY76: TOTAL: \$24,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pierson, W. J. GSFC/Mueller, J. L. 33-Oceanography

NAS 6-2439 **City College of New York** **2848**
 GEOS-C research study
Period *Obligations*
 02/04/74-01/31/76 FY76: TOTAL: \$57,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pierson, W. J. WFC/Rossi, L. C. 32-Geological Sci

NAS 9-13642 **City College of New York** **2849**
 Joint meteorological, oceanographic and sensor evaluation
 program. Skylab experiment S-193
Period *Obligations*
 07/01/73-06/30/76 FY76: \$15,236 TOTAL: \$378,833
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pierson, W. J. JSC/Byrns, Z. H. 13-Physics

NAS 9-13940 **City College of New York** **2850**
 Communication systems analysis study
Period *Obligations*
 04/04/74-04/15/76 FY76: \$30,000 TOTAL: \$159,892
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schilling, D. L. JSC/Batson, B. H. 45-Elec Engr
 Scheinberg, N. JSC/Dawson, C. T.
 Cicero, J. L.

NGL 33-013-034 **City College of New York** **2851**
 Investigations of electromagnetics and statistical dynamics as
 applied to plasma propulsion
Period *Obligations*
 03/22/68-07/31/75 FY76: \$322 TOTAL: \$80,322
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tchen, C. M. HQ-NS/Thom, K. 13-Physics

NASA'S UNIVERSITY PROGRAM NEW YORK (Continued)

NGL 33-013-040 **City College of New York** **2852**
Theoretical research in astrophysics and astronomy
Period *Obligations*
04/23/69-09/30/78 FY76: \$20,000 TOTAL: \$334,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Erlbach, E. GSFC/Stothers, R. B. 11-Astronomy
GSFC/Chiu, H. Y.

NGR 33-013-086 **City College of New York** **2853**
Models for large scale meteorological prediction experiments
Period *Obligations*
10/01/73-10/31/76 FY76: \$41,000 TOTAL: \$132,976
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spar, J. GSFC/Halem, M. 31-Atmos Sci

NSG 1169 **City College of New York** **2854**
An adaptive learning control system for aircraft
Period *Obligations*
05/01/75-05/31/77 FY76: \$29,971 TOTAL: \$64,788
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mekel, R. LARC/Montgomery, R. C. 41-Aero Engr
LARC/Price, D. B.

NSG 1305 **City College of New York** **2855**
Large scale eddy transports in the upper atmosphere
Period *Obligations*
05/03/76-05/02/77 FY76: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chen, C. M. LARC/Turner, R. E. 31-Atmos Sci
LARC/Callis, L. B., Jr.

NSG 5013 **City College of New York** **2856**
Efficient processing of video signals
Period *Obligations*
06/15/74-09/30/76 FY76: \$35,000 TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schilling, D. L. GSFC/Miller, J. E. 45-Elec Engr

NSG 7144 **City College of New York** **2857**
Applications of satellite technology for regional organizations
Period *Obligations*
06/01/75-09/30/76 FY76: \$185,939 TOTAL: \$285,939
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schilling, D. L. HQ-EE/Ernst, H. E. 49-Engr, NEC
Wecker, S. C. HQ-EE/Fang, A. C.

NSG 7028 **City Univ of Ny - Grad School & Univ Cen** **2858**
A statistical chemical and thermodynamic approach to the study of lunar rocks
Period *Obligations*
01/01/74-07/31/75 FY76: TOTAL: \$17,786
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Saxena, S. K. HQ-SM/Kosofsky, L. J. 32-Geological Sci
HQ-SM/Roberson, F. I.

NAS 8-31708 **Clarkson College of Technology** **2859**
Space processing applications, shuttle payloads requirements specification study
Period *Obligations*
09/26/75-03/25/76 FY76: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cole, R. MSFC/Tatler, K. R. 19-Phys Sci, NEC
Wilcox, W. R. MSFC/Poe, J. W.

NAS 8-31709 **Clarkson College of Technology** **2860**
Space processing applications, shuttle payloads requirements specification study
Period *Obligations*
09/26/75-03/25/76 FY76: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilcox, W. R. MSFC/Taylor, K. R. 19-Phys Sci, NEC
MSFC/Poe, J. W.

NSG 3100 **Clarkson College of Technology** **2861**
Polymer morphology and random chain scission
Period *Obligations*
07/01/76-09/30/77 FY76: \$44,738 TOTAL: \$44,738
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jellinek, H. H. LERC/Serafini, T. T. 12-Chemistry

NSG 7170 **Clarkson College of Technology** **2862**
Particle induced visual sensations
Period *Obligations*
09/01/75-08/31/76 FY76: \$5,000 TOTAL: \$5,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McNulty, P. J. HQ-SB/Halstead, T. W. 59-Life Sci, NEC
Pease, V. P. HQ-SB/Jones, W. L.
Bond, V. P.

NAS 5-20023 **Columbia University** **2863**
Technical service operations and materials for cataloging books
Period *Obligations*
03/15/74-03/14/75 FY76: \$6,409 TOTAL: \$70,527
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fountain, T. D. GSFC/Jennings, N. 99-Multi-Discip

NAS 5-22311 **Columbia University** **2864**
Technical service operations and materials for cataloging books and other material
Period *Obligations*
03/14/75-03/14/76 FY76: TOTAL: \$59,459
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fountain, T. D. GSFC/Guntharp, P. A. 99-Multi-Discip

NAS 5-22341 **Columbia University** **2865**
Solar maximum measurement experiment
Period *Obligations*
05/06/75-09/05/75 FY76: \$23,000 TOTAL: \$76,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Novick, R. GSFC/Donley, J. L. 11-Astronomy
Wolff, R. S.

NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)

NAS 5-22408 Columbia University 2866
 Reduction and analysis of data from OSO-I graphite crystal X-ray spectrometer and polarimeter experiment
Period Obligations
 06/26/75-06/24/77 FY76: \$395,000 TOTAL: \$495,000
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. GSFC/Worrall, W. 31-Atmos Sci

NAS 5-22890 Columbia University 2867
 Studies of focusing Bragg polarimeter and conical Bragg crystal spectrometer for spacelab/shuttle missions
Period Obligations
 02/19/76-11/18/76 FY76: \$38,500 TOTAL: \$38,500
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. GSFC/White, A. F., Jr. 11-Astronomy

NAS 5-22936 Columbia University 2868
 Technical service operations and materials for acquisition, processing, and cataloging of books
Period Obligations
 03/15/76-03/31/77 FY76: \$22,210 TOTAL: \$22,210
Prin. Invest. NASA Tech. Officer CASE Category
 Lewis, J. P. GSFC/Jennings, N. 99-Multi-Discip

NAS 5-23623 Columbia University 2869
 Extreme ultra-violet and soft X-ray study
Period Obligations
 06/21/76-11/05/76 FY76: \$8,311 TOTAL: \$8,311
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. GSFC/Weinreb, M. B. 11-Astronomy

NAS 6-2455 Columbia University 2870
 Mapping of ocean tides using GEOS-C data
Period Obligations
 03/15/74-03/15/76 FY76: \$8,477 TOTAL: \$69,377
Prin. Invest. NASA Tech. Officer CASE Category
 Kuo, J. T. WFC/Stanley, H. R. 33-Oceanography
 Jachens, R. C. WFC/Rossi, L. C.

NAS 6-2519 Columbia University 2871
 GEOS-C research
Period Obligations
 10/16/74-10/31/77 FY76: \$49,717 TOTAL: \$139,317
Prin. Invest. NASA Tech. Officer CASE Category
 Talwani, M. WFC/Stanley, H. R. 32-Geological Sci
 Watts, A. WFC/Rossi, L. C.

NAS 8-30753 Columbia University 2872
 Design, development and operation of the HEAO mission B X-ray telescope experiment
Period Obligations
 06/01/74-12/31/79 FY76: \$35,000 TOTAL: \$70,000
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. MSFC/Manning, H. S. 11-Astronomy
 Angel, J. R. MSFC/Power, J. A.
 Kestenbaum, H. L.

NAS 9-6037 Columbia University 2873
 Heat flow experiment for ALSEP
Period Obligations
 06/06/66-12/31/75 FY76: TOTAL: \$1,439,275
Prin. Invest. NASA Tech. Officer CASE Category
 Langseth, M. G. JSC/Eichelman, W. F. 19-Phys Sci, NEC

NAS 9-14931 Columbia University 2874
 Study developed disuse osteoporosis in animals troporosis
Period Obligations
 01/01/76-12/31/76 FY76: \$65,000 TOTAL: \$65,000
Prin. Invest. NASA Tech. Officer CASE Category
 Bassett, C. A. JSC/Rambaut, P. C. 53-Other Medical

NGR 33-008-102 Columbia University 2875
 Research in X-ray astronomy
Period Obligations
 01/30/68-01/31/77 FY76: \$350,002 TOTAL: \$1,498,842
Prin. Invest. NASA Tech. Officer CASE Category
 Novick, R. GSFC/Bissell, E. E., Jr. 11-Astronomy
 HQ-SA/Opp, A. G.

NGR 33-008-146 Columbia University 2876
 Study of strain buildup, release and earthquake prediction
Period Obligations
 02/09/71-08/31/76 FY76: \$79,964 TOTAL: \$306,283
Prin. Invest. NASA Tech. Officer CASE Category
 Scholz, C. H. GSFC/Smith, D. E. 19-Phys Sci, NEC
 Johnson, T. L.

NGR 33-008-168 Columbia University 2877
 Economic impact of the NASA program
Period Obligations
 09/21/71-02/27/76 FY76: \$1,000 TOTAL: \$75,850
Prin. Invest. NASA Tech. Officer CASE Category
 Ginzberg, E. HQ-P/Morris, J. D. 72-Economics
 Schnee, J. E. HQ-P/Hansing, F. D.
 Yavitz, B.

NGR 33-008-177 Columbia University 2878
 Lunar sample analysis
Period Obligations
 11/01/72-01/31/77 FY76: \$33,800 TOTAL: \$77,335
Prin. Invest. NASA Tech. Officer CASE Category
 Horai, K. JSC/Harris, J. W. 13-Physics

NGR 33-008-183 Columbia University 2879
 Study of nonequilibrium conditions in active regions during solar flares
Period Obligations
 07/01/73-07/31/76 FY76: TOTAL: \$25,259
Prin. Invest. NASA Tech. Officer CASE Category
 Wolff, R. S. HQ-ST/Taylor, W. L. 11-Astronomy

NASA'S UNIVERSITY PROGRAM NEW YORK (Continued)

NGR 33-008-189 **Columbia University** **2880**
Study of X-ray polarization of solar flares
Period *Obligations*
09/01/73-08/31/76 FY76: TOTAL: \$25,287
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolff, R. S. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 33-008-191 **Columbia University** **2881**
Multidisciplinary research in the space sciences
Period *Obligations*
02/15/73-02/28/77 FY76: \$500,277 TOTAL: \$1,737,796
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hartmann, S. R. GSFC/Thaddeus, P. 11-Astronomy
Broecker, W. S. GSFC/Halem, M.

NGR 33-008-194 **Columbia University** **2882**
Detailed studies of the nonperiodic time variability of several galactic X-ray sources
Period *Obligations*
11/01/73-03/31/75 FY76: TOTAL: \$20,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weisskopf, M. C. HQ-SA/Roman, N. G. 11-Astronomy

NGR 33-008-199 **Columbia University** **2883**
Petrological study of lithic clasts in Apollo 14 breccias: determination of bulk chemistry and mineralogy as constraints on highlands petrogenesis and evolution
Period *Obligations*
02/01/74-01/31/77 FY76: \$66,200 TOTAL: \$146,822
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ridley, W. I. JSC/Harris, J. W. 12-Chemistry

NGR 33-008-200 **Columbia University** **2884**
Analysis and interpretation of rocket X-ray polarimetric data for solar X-ray astronomy
Period *Obligations*
10/01/73-03/31/75 FY76: TOTAL: \$24,860
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Novick, R. HQ-ST/Timothy, A. F. 11-Astronomy

NSG 1059 **Columbia University** **2885**
Structural response of reusable surface insulation panels of space shuttle to random pressure fields
Period *Obligations*
07/01/74-06/30/76 FY76: TOTAL: \$25,393
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vaicaitis, R. LARC/Mixson, J. S. 41-Aero Engr

NSG 1115 **Columbia University** **2886**
Effects of aircraft noise on human response
Period *Obligations*
10/01/74-08/14/76 FY76: \$109,875 TOTAL: \$149,755
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Galanter, E. LARC/Cawthorn, J. M. 69-Psych, NEC
Golding, N.

NSG 1164 **Columbia University** **2887**
Study of community annoyance with aircraft noise in the vicinity of JFK airport
Period *Obligations*
04/01/75-08/31/76 FY76: \$85,000 TOTAL: \$215,634
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Borsky, P. N. LARC/Powell, C. A. 49-Engr, NEC

NSG 3050 **Columbia University** **2888**
Creep and stress rupture behavior of oxide dispersion strengthened super alloys
Period *Obligations*
06/01/75-06/01/77 FY76: \$38,846 TOTAL: \$74,364
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tien, J. K. LERC/Glasgow, T.K. 47-Materials Engr

NSG 5072 **Columbia University** **2889**
Surface deformation and elasticity studies
Period *Obligations*
08/01/75-03/31/77 FY76: \$48,766 TOTAL: \$48,766
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bilham, R. G. GSFC/Smith, D. E. 32-Geological Sci

NSG 5079 **Columbia University** **2890**
High spatial resolution study of extended X-ray sources using Copernicus satellite and sounding rockets observations
Period *Obligations*
09/01/75-02/28/77 FY76: \$9,909 TOTAL: \$9,909
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolff, R. S. GSFC/Kupperian, J. E. 11-Astronomy

NSG 5080 **Columbia University** **2891**
Application of LANDSAT data to agricultural resource problems
Period *Obligations*
08/15/75-08/14/76 FY76: \$62,286 TOTAL: \$62,286
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Webb, K. E. GSFC/Ungar, S. G. 32-Geological Sci
High, C. J.
Coiner, J. C.

NSG 5118 **Columbia University** **2892**
High resolution spectroscopy of variable X-ray sources
Period *Obligations*
06/01/76-05/31/77 FY76: \$7,500 TOTAL: \$7,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wolff, R. S. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7075 **Columbia University** **2893**
Solar X-ray polarimetry
Period *Obligations*
07/01/74-06/30/76 FY76: TOTAL: \$123,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Novick, R. HQ-ST/Timothy, A. F. 11-Astronomy

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NSG 7105 **Columbia University** **2894**
 Calculation of collision cross sections of astrophysical interest
Period *Obligations*
 12/01/74-11/30/76 FY76: \$35,000 TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Austin, P. M. HQ-SA/Bogges, N. W. 11-Astronomy
 Geotis, S. G. HQ-SA/Roman, N. G.

NSG 7194 **Columbia University** **2895**
 A critical study of constraints imposed by existing observational data
Period *Obligations*
 02/01/76-01/31/77 FY76: \$38,617 TOTAL: \$38,617
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Langseth, M. G. HQ-SL/Williams, R. J. 32-Geological Sci
 Nafe, J. E. HQ-SL/Flinn, E. A.
 Dley, R. I.

NSG 7200 **Columbia University** **2896**
 Rare-earth element abundance studies in chondrite meteorites
Period *Obligations*
 03/01/76-02/28/77 FY76: \$53,064 TOTAL: \$53,064
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 O'Nions, R. K. HQ-SL/French, B. M. 32-Geological Sci
 Evensen, N. M. HQ-SL/Flinn, E. A.

NSG 7248 **Columbia University** **2897**
 Detailed studies of time variability of the galactic X-ray sources Cygnus x-1 and Scorpius x-1
Period *Obligations*
 06/15/76-06/14/77 FY76: \$20,000 TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weisskopf, M. C. HQ-SA/Sofia, S. 11-Astronomy
 HQ-SA/Opp, A. G.

NSG 9025 **Columbia University** **2898**
 An inquiry into the low seismic attenuation of lunar crust
Period *Obligations*
 02/01/75-01/31/77 FY76: \$13,245 TOTAL: \$43,345
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Schreiber, E. JSC/Harris, J. W. 32-Geological Sci

NAS 1-9683 **Cornell University** **2899**
 Participation in the science planning for the Viking 1975 missions in the area of imaging
Period *Obligations*
 04/08/70-03/31/77 FY76: \$30,904 TOTAL: \$236,343
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Sagan, C. E. LARC/Williams, T. S., Jr. 99-Multi-Discip
 LARC/Glenney, W. R.

NAS 2-7846 **Cornell University** **2900**
 Study on cells and embryogenesis in space
Period *Obligations*
 09/01/73-11/30/75 FY76: TOTAL: \$91,694
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Steward, F. C. ARC/Tremor, J. W. 51-Biology
 Krikorian, A. D.

NAS 2-8706 **Cornell University** **2901**
 100 micron detector development program
Period *Obligations*
 01/02/75-12/31/75 FY76: TOTAL: \$14,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Houck, J. R. ARC/Erickson, E. F. 11-Astronomy
 ARC/Witteborn, F. C.

NAS 5-20705 **Cornell University** **2902**
 Theoretical investigation for atmospheric Explorer C, D & E missions
Period *Obligations*
 08/19/74-11/19/77 FY76: \$42,000 TOTAL: \$82,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Walker, J. C. GSFC/Findlay, J. A. 13-Physics

NAS 5-22586 **Cornell University** **2903**
 Mission definition study of an astronomical satellite survey in the infrared
Period *Obligations*
 06/15/75-09/06/76 FY76: \$12,237 TOTAL: \$12,237
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Houck, J. R. GSFC/Hymowitz, E. W. 11-Astronomy
 Forrest, W. I.

NAS 5-23236 **Cornell University** **2904**
 Feasibility study for infrared interferometer, spectrometer, & radiometer for Mariner/Jupiter 1977 launch
Period *Obligations*
 05/01/73-06/30/77 FY76: \$8,000 TOTAL: \$24,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gierasch, P. J. GSFC/Conrath, B. J. 13-Physics
 GSFC/Hanel, R. A.

NASW 2573 **Cornell University** **2905**
 Control elements for an unmanned Martian roving vehicle
Period *Obligations*
 09/01/73-11/30/74 FY76: TOTAL: \$89,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wehe, R. L. HQ-SL/Tarver, P. 49-Engr, NEC
 HQ-SL/Herman, D. H.

NASW 2750 **Cornell University** **2906**
 Control elements for an unmanned Martian roving vehicle
Period *Obligations*
 09/01/74-08/31/75 FY76: TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wehe, R. L. HQ-SL/Tarver, P. 49-Engr, NEC
 Osborn, R. E. HQ-SL/Herman, D. H.

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NGL 33-010-005 **Cornell University** **2907**
Studies of lunar surface & solar atmosphere in vicinity of the moon
Period *Obligations*
03/13/63-01/31/76 FY76: \$23,000 TOTAL: \$1,646,508
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gold, T. HQ-SM/Stuart-Alexander, D. E.
HQ-SM/Roberson, F. I. 32-Geological Sci

NGL 33-010-064 **Cornell University** **2908**
High energy molecular lasers
Period *Obligations*
03/15/68-12/31/76 FY76: \$45,000 TOTAL: \$378,492
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cool, T. A. LARC/Allario, F. 13-Physics

NGL 33-010-082 **Cornell University** **2909**
The study of lunar and planetary surfaces and atmospheres
Period *Obligations*
09/23/68-08/31/78 FY76: \$73,640 TOTAL: \$558,718
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NGL 33-010-171 **Cornell University** **2910**
A program in remote sensing
Period *Obligations*
02/14/72-05/31/79 FY76: \$100,000 TOTAL: \$600,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liang, T. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGL 33-010-186 **Cornell University** **2911**
Studies of thermal structure and motion of planetary atmospheres
Period *Obligations*
04/18/73-06/14/79 FY76: \$50,799 TOTAL: \$129,460
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gierasch, P. J. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NGR 33-010-081 **Cornell University** **2912**
2 to 4 micron spectroscopy of Mars
Period *Obligations*
03/01/73-08/30/76 FY76: \$45,000 TOTAL: \$120,897
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houck, J. R. ARC/Cameron, R. M. 11-Astronomy
Sagan, C. E. ARC/Gillespie, C. M., Jr.
Pollack, J.

NGR 33-010-101 **Cornell University** **2913**
An integrated program in exobiology and problems related to origin of life
Period *Obligations*
10/09/69-09/30/76 FY76: \$75,000 TOTAL: \$519,945
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-SB/Young, R. S. 12-Chemistry
Khare, B. N.

NGR 33-010-108 **Cornell University** **2914**
Implications of convection within the moon
Period *Obligations*
05/18/70-01/31/77 FY76: \$27,432 TOTAL: \$118,828
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turcotte, D. L. HQ-SM/Stuart-Alexander, D. E. 32-Geological Sci
Burns, J. A. HQ-SL/Flinn, E. A.

NGR 33-010-137 **Cornell University** **2915**
Lunar sample analysis
Period *Obligations*
02/12/71-09/30/76 FY76: \$50,000 TOTAL: \$238,313
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gold, T. JSC/Harris, J. W. 13-Physics

NGR 33-010-145 **Cornell University** **2916**
Cosmic gamma-ray telescope
Period *Obligations*
01/06/71-01/31/76 FY76: TOTAL: \$258,300
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greisen, K. I. HQ-SA/Opp, A. G. 11-Astronomy

NGR 33-010-146 **Cornell University** **2917**
Submillimeter astronomical spectrometry from aircraft
Period *Obligations*
02/16/72-08/31/76 FY76: \$49,885 TOTAL: \$150,814
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. O. ARC/Cameron, R. M. 11-Astronomy
Ward, D. ARC/Mason, R. H.

NGR 33-010-161 **Cornell University** **2918**
Studies of the magnetospheres of Earth and Jupiter
Period *Obligations*
01/18/72-06/30/77 FY76: \$60,000 TOTAL: \$177,790
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Farley, D. T. HQ-ST/Taylor, W. W. 13-Physics
HQ-ST/Schmerling, E. R.

NGR 33-010-172 **Cornell University** **2919**
Research in a multiband far infrared surface with a balloon-borne telescope
Period *Obligations*
11/20/72-09/19/76 FY76: \$60,000 TOTAL: \$204,517
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. O. HQ-SA/Boggess, N. W. 11-Astronomy
Frederick, C. L. HQ-SA/Roman, N. G.

NGR 33-010-178 **Cornell University** **2920**
Analysis of Apollo 12 and Explorer 35 magnetometer data
Period *Obligations*
06/13/72-01/31/77 FY76: \$7,725 TOTAL: \$95,418
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuckes, A. F. HQ-SL/Williams, R. J. 32-Geological Sci
HQ-SL/Flinn, E. A.

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NGR 33-010-182 **Cornell University** **2921**
16 to 40 micron spectroscopy of Jupiter
Period *Obligations*
12/20/72-08/30/76 FY76: \$50,766 TOTAL: \$153,084
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houck, J. R. ARC/Cameron, R. M. 11-Astronomy
Pollack, J. B. ARC/Mason, R. H.

NGR 33-010-188 **Cornell University** **2922**
Astrophysical material science theory
Period *Obligations*
08/01/72-06/30/76 FY76: \$36,371 TOTAL: \$140,371
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Krumhansl, J. A. LERC/Brown, G. V. 13-Physics
Ashcroft, N. W.

NGR 33-010-189 **Cornell University** **2923**
Ultra pressure materials science
Period *Obligations*
08/01/75-06/30/76 FY76: \$110,000 TOTAL: \$380,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ruoff, A. L. LERC/Aron, P. R. 47-Materials Engr
Ashcroft, N. W.

NGR 33-010-210 **Cornell University** **2924**
High resolution 10-micron spectra at different planetary latitudes
Period *Obligations*
09/01/73-08/31/76 FY76: \$11,600 TOTAL: \$72,118
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. O. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGR 33-010-220 **Cornell University** **2925**
Interdisciplinary investigations of Mariner 9 data
Period *Obligations*
12/05/73-06/30/76 FY76: \$25,763 TOTAL: \$159,763
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sagan, C. E. HQ-SL/Dwornik, S. E. 32-Geological Sci
Veverka, J. HQ-SL/Wahmann, R.

NSG 1263 **Cornell University** **2926**
Noise and systematic errors common to many Hadamard transform optical systems
Period *Obligations*
12/01/75-11/30/76 FY76: \$19,961 TOTAL: \$19,961
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harwit, M. O. LARC/Jobson, D. J. 13-Physics

NSG 2078 **Cornell University** **2927**
Structural characterization of hydrogen attack
Period *Obligations*
04/01/75-04/01/77 FY76: \$32,250 TOTAL: \$64,509
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, H. H. ARC/Nelson, H. G. 47-Materials Engr

NSG 3019 **Cornell University** **2928**
Flow processes in combusters
Period *Obligations*
07/01/74-06/30/77 FY76: \$75,700 TOTAL: \$214,605
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gouldin, F. C. LERC/Marek, C. J. 41-Aero Engr
Leibovich, S. LERC/Grobman, J. S.
Lean, M. C.

NSG 3080 **Cornell University** **2929**
Theoretical analysis of impact of composite plates
Period *Obligations*
09/01/75-09/01/76 FY76: \$29,439 TOTAL: \$29,439
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moon, F. C. LERC/Chamis, C. C. 41-Aero Engr
LERC/Johns, R. H.

NSG 5037 **Cornell University** **2930**
Studies in support of the analysis of astronomical data from Apollo 16
Period *Obligations*
12/01/74-08/31/75 FY76: TOTAL: \$12,190
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greisen, K. I. GSFC/Trombka, J. I. 11-Astronomy

NSG 5060 **Cornell University** **2931**
Comparison between calculated gravity anomalies for dynamic processes in the mantle and observations
Period *Obligations*
04/01/75-03/31/77 FY76: \$43,000 TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Turcotte, D. L. GSFC/Smith, D. E. 32-Geological Sci

NSG 7104 **Cornell University** **2932**
Theoretical studies of the ionosphere using satellite and ground bases
Period *Obligations*
11/25/74-11/30/75 FY76: TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Walker, J. C. HQ-ST/Schmerling, E. R. 13-Physics

NSG 7126 **Cornell University** **2933**
High spatial resolution multicolor observation of Neptune during occultation by the Moon
Period *Obligations*
01/01/75-10/31/76 FY76: \$5,990 TOTAL: \$45,418
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NSG 7135 **Cornell University** **2934**
Comparative study of planetary bow shocks and magnetospheres
Period *Obligations*
05/31/75-05/31/76 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Auer, P. L. HQ-ST/Schmerling, E. R. 13-Physics

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NSG 7156 **Cornell University** **2935**
Physical studies of planetary surfaces
Period *Obligations*
07/01/75-06/30/76 **FY76: \$25,000** **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Veverka, J. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NSG 7235 **Cornell University** **2936**
Light-induced amino acid transport by envelope vesicles of halobacterium halobium cells
Period *Obligations*
03/01/76-02/28/77 **FY76: \$33,500** **TOTAL: \$33,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
MacDonald, R. E. HQ-SB/Young, R. S. 51-Biology

NSG 7243 **Cornell University** **2937**
Occultation studies of planets and satellites: the occultation of a geminorum by Mars
Period *Obligations*
02/01/76-09/30/76 **FY76: \$16,420** **TOTAL: \$16,420**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Elliot, J. L. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NAS 8-31513 **Cornell University - Medical Center** **2938**
Separation of lymphocytes by electrophoresis under terrestrial conditions and at zero gravity
Period *Obligations*
06/05/75-01/04/77 **FY76: \$60,000** **TOTAL: \$72,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rubin, A. L. MSFC/Nerren, B. H. 99-Multi-Discip
Stenzel, K. H. MSFC/Allen, R. E.

NGR 33-010-179 **Cornell University - Medical Center** **2939**
Central neural mechanisms governing postural cardiovascular reflexes
Period *Obligations*
05/25/72-06/14/76 **FY76:** **TOTAL: \$173,760**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reis, D. J. ARC/Sandler, H. 53-Other Medical

NGR 33-209-002 **Hofstra University** **2940**
Radar studies and application of measurements of ocean wave height and distinctive spectrum
Period *Obligations*
03/28/72-01/31/77 **FY76:** **TOTAL: \$64,441**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weissman, D. E. LARC/Swift, C. T. 45-Elec Engr

NAS 2-7963 **New York University** **2941**
Pioneer F/G data analysis of zodiacal light experiment
Period *Obligations*
01/04/74-06/30/76 **FY76: \$101,801** **TOTAL: \$319,916**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinberg, J. L. ARC/Hall, C. F. 11-Astronomy
ARC/Porter, D. L.

NGL 33-016-013 **New York University** **2942**
Theoretical research on the properties of the atmosphere of the earth and other planets and on the atmospheric effects of solar activity
Period *Obligations*
06/01/73-06/30/76 **FY76:** **TOTAL: \$591,181**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Isaacson, E. GSFC/Halem, M. 31-Atmos Sci
Stoker, J. J., Jr.

NGL 33-016-119 **New York University** **2943**
Engine effect on sonic boom; unsteady engine inlet interaction
Period *Obligations*
06/05/67-07/31/76 **FY76: \$31,020** **TOTAL: \$550,649**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ferri, A. LARC/Fetterman, D. E. 41-Aero Engr
Ting, L.

NGR 33-016-131 **New York University** **2944**
Hypersonic engine airplane integration
Period *Obligations*
02/27/68-09/30/76 **FY76: \$110,000** **TOTAL: \$1,074,571**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zakkay, V. LARC/Huber, P. W. 41-Aero Engr
Agnone, A.

NGR 33-016-167 **New York University** **2945**
Numerical design of transonic shockless airfoils
Period *Obligations*
10/01/70-08/31/76 **FY76: \$80,000** **TOTAL: \$515,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garabedian, P. R. LARC/South, J. C., Jr. 21-Mathematics

NGR 33-016-196 **New York University** **2946**
Physical properties of molecular clouds
Period *Obligations*
09/01/73-10/31/76 **FY76: \$44,351** **TOTAL: \$84,351**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Glassgold, A. E. HQ-SA/Rosendahl, J. D. 13-Physics
HQ-SA/Roman, N. G.

NGR 33-016-197 **New York University** **2947**
Scale model wind tunnel study of dispersion of pollutants in the Cleveland area
Period *Obligations*
03/15/73-12/31/75 **FY76:** **TOTAL: \$90,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoydysh, W. G. LERC/Neustadter, H. E. 39-Env Sci, NEC

NGR 33-016-201 **New York University** **2948**
Study of transonic flow over yawed wings
Period *Obligations*
05/29/73-08/31/76 **FY76: \$50,000** **TOTAL: \$150,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Garabedian, P. R. ARC/Hicks, R. M. 41-Aero Engr
Jameson, A. ARC/Pfyll, F. A.
Bauer, F.

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|---|----------------------------|-----------------------|
| NSG 1291 | New York University | 2949 |
| Sound propagation through a jet exiting from a circular duct | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/01/76-02/28/77 | FY76: \$32,000 | TOTAL: \$32,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category:</i> |
| Ting, L. | LARC/Liu, C. H. | 41-Aero Engr |

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|--|----------------------------|----------------------|
| NSG 1298 | New York University | 2950 |
| Definition of future SST required pollution characteristics as a function of fuel use, flight Mach number and altitude | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/01/76-11/01/76 | FY76: \$20,050 | TOTAL: \$20,050 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffert, M. I. | LARC/McLean, F. E. | 39-Env Sci, NEC |

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|---|----------------------------|----------------------|
| NSG 1303 | New York University | 2951 |
| An experimental investigation of the aerodynamics of slender finned bodies at high angles of attack | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/01/76-08/31/76 | FY76: \$50,000 | TOTAL: \$50,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Zakkay, V. | LARC/Stallings, R. L. | 41-Aero Engr |

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| NSG 3059 | New York University | 2952 |
| Analysis of experiments on hydrodynamics instability in the absence of gravity | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/75-03/31/77 | FY76: \$21,614 | TOTAL: \$41,614 |
| <i>Prin. invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Keller, J. B. | LERC/Labus, T. L. | 49-Engr, NEC |

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| NSG 5032 | New York University | 2953 |
| Optimization and machine independence of programming languages | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/01/74-11/30/76 | FY76: \$28,702 | TOTAL: \$64,510 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Schwartz, J. T. | GSFC/Schneck, P. B. | 13-Physics |
| | GSFC/Halem, M. | |

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|---|----------------------------|----------------------|
| NSG 5033 | New York University | 2954 |
| Atmospheric chemistry and transport models of the natural and perturbed stratosphere | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/01/74-01/31/76 | FY76: | TOTAL: \$25,249 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffert, M. I. | GSFC/Stewart, R. W. | 31-Atmos Sci |

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|--|----------------------------|----------------------|
| NSG 5034 | New York University | 2955 |
| Research program in climatology and meteorology | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/75-12/31/76 | FY76: \$76,000 | TOTAL: \$128,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Isaacson, E. | GSFC/Halem, M. | 31-Atmos Sci |
| Stoker, J. J., Jr. | GSFC/Hansen, J. E. | |

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|---|----------------------------|----------------------|
| NSG 5045 | New York University | 2956 |
| Investigation of the planetary boundary layer in relation to large scale atmospheric dynamics | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/75-01/31/77 | FY76: \$25,000 | TOTAL: \$50,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffert, M. I. | GSFC/Halem, M. | 31-Atmos Sci |
| | GSFC/Schneck, P. B. | |

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|--|----------------------------|----------------------|
| NSG 7116 | New York University | 2957 |
| A study of solar-interplanetary relationship using galactic cosmic ray decreases | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/01/75-02/29/76 | FY76: | TOTAL: \$15,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Korff, S. A. | HQ-SA/Lazarus, A. J. | 11-Astronomy |
| | HQ-SA/Opp, A. G. | |

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|--|----------------------------|------------------------|
| NSG 7169 | New York University | 2958 |
| Study of the economic impact of space exploration | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/75-12/31/76 | FY76: \$25,630 | TOTAL: \$25,630 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Morgenstern, O. | HQ-K/Gray, E. Z. | 72-Economics |

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|---|--|-----------------------|
| NCA 2-595501 | Polytechnic Institute of New York | 2959 |
| Stability of new transparent polymeric materials | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/20/75-06/01/76 | FY76: | TOTAL: \$9,994 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Pearce, E. M. | ARC/Ziill, L. P. | 12-Chemistry |

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|---|--|----------------------|
| NGR 33-006-047 | Polytechnic Institute of New York | 2960 |
| Investigation of diffraction by planetary atmospheres | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/25/68-03/31/77 | FY76: \$18,000 | TOTAL: \$192,509 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gross, S. H. | HQ-ST/Taylor, W. W. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

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|---|--|----------------------|
| NGR 33-006-068 | Polytechnic Institute of New York | 2961 |
| Study of escape of gases from comets, planets, and satellites | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/26/72-12/31/76 | FY76: \$31,307 | TOTAL: \$117,764 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gross, S. H. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

| NGR 33-006-070 Polytechnic Institute of New York 2962 Synthesis of polypeptides, sugar phosphates and polynucleotides from intermediates under simulated conditions | |
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| <i>Period</i> | <i>Obligations</i> |
| 04/26/73-06/14/77 | FY76: \$1,000 TOTAL: \$130,448 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> <i>CASE Category</i> |
| Eirich, F. R. | HQ-SB/Young, R. S. 12-Chemistry |

NASA'S UNIVERSITY PROGRAM

NEW YORK (Continued)

NSG 1198 Polytechnic Institute of New York 2963
 Applicability of Brillouin scattering to flow field diagnostics
Period *Obligations*
 07/01/75-06/30/77 FY76: TOTAL: \$20,776
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lederman, S. LARC/Hoppe, J. C. 42-Astro Engr
 LARC/Hunter, W. W., Jr.

NSG 1244 Polytechnic Institute of New York 2964
 Spline collocation for viscous flow
Period *Obligations*
 10/01/75-09/30/76 FY76: \$12,000 TOTAL: \$12,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rubin, S. G. LARC/Rudy, D. H. 41-Aero Engr
 LARC/Harris, J. E.

NSG 1248 Polytechnic Institute of New York 2965
 Extended conformal mappings for supersonic aircraft calculations
Period *Obligations*
 10/01/75-09/30/76 FY76: \$37,992 TOTAL: \$37,992
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Moretti, G. LARC/Salas, M. D. 41-Aero Engr
 LARC/Mascitti, V. R.

NSG 1300 Polytechnic Institute of New York 2966
 Wing body aerodynamic interference investigation
Period *Obligations*
 04/01/76-03/31/77 FY76: \$29,942 TOTAL: \$29,942
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Krenkel, A. R. LARC/Morgan, H. L., Jr. 41-Aero Engr
 LARC/Thomas, J. L.

NSG 2147 Polytechnic Institute of New York 2967
 Exploratory synthesis of new fire-safe polymeric materials
Period *Obligations*
 05/01/76-04/30/77 FY76: \$39,948 TOTAL: \$39,948
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Pearce, E. M. ARC/Fohlen, G. M. 12-Chemistry
 Banks, E.
 Ordano, G. I.
 Parker, J. A.

NSG 3108 Polytechnic Institute of New York 2968
 Application of Raman diagnostics to combustion
Period *Obligations*
 06/01/76-05/31/79 FY76: \$47,987 TOTAL: \$47,987
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lederman, S. LERC/Will, H. A. 13-Physics

NSG 5041 Polytechnic Institute of New York 2969
 Meteorology and atmospheric physics research
Period *Obligations*
 01/01/75-06/30/75 FY76: TOTAL: \$12,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Miller, J. E. GSFC/Halem, M. 31-Atmos Sci
 GSFC/Hansen, J. E.

NSG 9022 Queens College 2970
 Sedimentological studies of lunar cores utilizing X-ray enhancement techniques
Period *Obligations*
 02/01/75-02/28/77 FY76: \$49,137 TOTAL: \$63,137
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Coch, N. K. JSC/Harris, J. W. 32-Geological Sci

NAS 8-26146 Rensselaer Polytechnic Institute 2971
 Growth of single crystals by vapor transport in zero gravity environment
Period *Obligations*
 06/04/70-10/06/76 FY76: \$35,000 TOTAL: \$203,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wiedmann, H. MSFC/Davidson, M. C. 47-Materials Engr
 MSFC/Arnett, G. M.

NAS 8-28307 Rensselaer Polytechnic Institute 2972
 Vapor growth of II-VI compounds
Period *Obligations*
 10/11/72-10/15/75 FY76: TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wiedemeier, H. MSFC/Adams, W. R. 19-Phys Sci, NEC
 MSFC/Davidson, M. C.

NAS 8-30578 Rensselaer Polytechnic Institute 2973
 Crystal growth from vapor phase in zero environment
Period *Obligations*
 01/11/74-03/31/76 FY76: TOTAL: \$72,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wiedemeier, H. MSFC/Adams, W. R. 19-Phys Sci, NEC
 MSFC/Boese, A.

NAS 8-31705 Rensselaer Polytechnic Institute 2974
 Space processing applications, shuttle payloads requirements specification
Period *Obligations*
 09/26/75-06/01/76 FY76: \$2,159 TOTAL: \$2,159
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 MacCrone, R. K. MSFC/Snyder, R. S. 19-Phys Sci, NEC

NGL 33-018-003 Rensselaer Polytechnic Institute 2975
 Interdisciplinary materials research including fundamental physics & chemistry of materials, environmental effects, and related problems
Period *Obligations*
 09/01/70-04/30/79 FY76: \$200,000 TOTAL: \$4,409,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wiberly, S. E. LERC/Lad, R. A. 47-Materials Engr

NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)

NGL 33-018-007 Rensselaer Polytechnic Institute 2976
Investigation of composition & chemical behavior of atmosphere of Venus

| Period | Obligations |
|-------------------|------------------------------------|
| 06/19/62-08/31/78 | FY76: \$100,000 TOTAL: \$1,387,400 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Harteck, P. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Hipsher, H. F. |

NGL 33-018-091 Rensselaer Polytechnic Institute 2977
Analysis and design of a capsule landing system and surface vehicle control system for Mars exploration

| Period | Obligations |
|-------------------|----------------------------------|
| 06/14/67-05/31/77 | FY76: TOTAL: \$815,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Yerazunis, S. W. | HQ-SL/Tarver, P. 49-Engr, NEC |
| | HQ-SL/Herman, D. H. |

NGR 33-018-148 Rensselaer Polytechnic Institute 2978
Photochemical investigations of the atmosphere of other planets

| Period | Obligations |
|-------------------|----------------------------------|
| 08/27/70-10/31/76 | FY76: \$53,000 TOTAL: \$207,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Ferris, J. P. | HQ-SB/Young, R. S. 12-Chemistry |

NGR 33-018-152 Rensselaer Polytechnic Institute 2979
Mechanics of high energy brakes

| Period | Obligations |
|-------------------|----------------------------------|
| 06/29/70-08/14/76 | FY76: \$80,000 TOTAL: \$367,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Ling, F. F. | LERC/Bill, R. C. 41-Aero Engr |
| Peterson, M. B. | LERC/Johnson, R. L. |
| Ho, T. L. | |

NGR 33-018-188 Rensselaer Polytechnic Institute 2980
Design & analysis of communication subsystem for planetary entry missions

| Period | Obligations |
|-------------------|----------------------------------|
| 04/26/73-09/30/76 | FY76: \$23,000 TOTAL: \$65,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Modestino, J. W. | ARC/Grant, T. L. 45-Elec Engr |

NSG 1052 Rensselaer Polytechnic Institute 2981
Utilization of ion implanted filaments as ion sources for in situ calibration of unmanned space vehicles and other applications

| Period | Obligations |
|-------------------|-----------------------------------|
| 05/01/74-09/30/76 | FY76: \$26,000 TOTAL: \$62,200 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| White, F. A. | LARC/Wood, G. M. 19-Phys Sci, NEC |

NSG 1188 Rensselaer Polytechnic Institute 2982
Reduced state feedback gain computation

| Period | Obligations |
|-------------------|----------------------------------|
| 06/01/75-11/30/76 | FY76: TOTAL: \$47,500 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kaufman, H. | LARC/Hood, R. V. 41-Aero Engr |

NSG 3007 Rensselaer Polytechnic Institute 2983
Relationship between boron fiber properties and its use in composites

| Period | Obligations |
|-------------------|--------------------------------------|
| 06/01/74-06/30/77 | FY76: TOTAL: \$70,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Diefendorf, R. J. | LERC/Grimes, H. H. 47-Materials Engr |

NSG 3057 Rensselaer Polytechnic Institute 2984
Advanced beam probe diagnostic system

| Period | Obligations |
|--------------------|----------------------------------|
| 03/01/75-09/01/76 | FY76: TOTAL: \$29,413 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Hickok, R. L., Jr. | LERC/Reinmann, J. J. 13-Physics |
| | LERC/Seikel, G. R. |

NSG 7065 Rensselaer Polytechnic Institute 2985
Structure-function studies on bacillus stearothermophilus

| Period | Obligations |
|-------------------|----------------------------------|
| 06/01/74-05/31/77 | FY76: \$28,000 TOTAL: \$74,512 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Wedler, F. C. | HQ-SB/Young, R. S. 51-Biology |
| Boylen, C. W. | |

NSG 7184 Rensselaer Polytechnic Institute 2986
Data acquisition and path selection decision making for an autonomous roving vehicle

| Period | Obligations |
|-------------------|--|
| 11/01/75-12/31/76 | FY76: \$30,000 TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Frederick, D. K. | HQ-RE/Pontious, C. E. 19-Phys Sci, NEC |
| Shen, C. N. | JPL/Dobrotin, B. M. |
| Razunis, Y. E. | |

NSG 3072 Rochester Institute of Technology 2987
Development of flexible rotor balancing criteria

| Period | Obligations |
|-------------------|-----------------------------------|
| 07/01/75-06/30/76 | FY76: TOTAL: \$31,783 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Rieger, N. F. | LERC/Anderson, W. J. 46-Mech Engr |
| Walter, W. W. | LERC/Fleming, D. P. |

NSG 5018 St. Lawrence University 2988
Investigation of relationship between linears and petroleum production in the Williston Basin

| Period | Obligations |
|-------------------|-------------------------------------|
| 08/15/74-08/15/75 | FY76: TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Erickson, J. M. | GSFC/Short, N. M. 32-Geological Sci |
| Street, J. S. | |

NASA'S UNIVERSITY PROGRAM NEW YORK (Continued)

NAS 8-30251 State Univ of New York - Albany 2989
Data analysis of SO73 gegenschein/zodiacal light experiment
Period *Obligations*
10/01/73-01/31/76 FY76: \$49,386 TOTAL: \$426,829
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinberg, J. L. MSFC/Gary, G. A. 13-Physics
MSFC/Miller, E. R.

NAS 8-31902 State Univ of New York - Albany 2990
Preliminary study of contaminant particulates around Skylab
Period *Obligations*
02/01/76-06/30/76 FY76: \$18,343 TOTAL: \$18,343
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schuerman, D. W. MSFC/Weinberg, J. L. 39-Env Sci, NEC
MSFC/Clifton, S.

NSG 2080 State Univ of New York - Albany 2991
Stratospheric aerosol as possible sources and sinks of trace gases
Period *Obligations*
05/01/75-04/30/76 FY76: TOTAL: \$25,427
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiang, C. S. ARC/Reynolds, R. T. 31-Atmos Sci
Mohnen, V. A. ARC/Pollack, J. B.

NSG 3095 State Univ of New York - Albany 2992
Fundamentals of radiation tolerance in silicon solar cells
Period *Obligations*
01/26/76-01/25/77 FY76: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Corbett, J. W. LERC/Baraona, C. R. 39-Env Sci, NEC
LERC/Brandhorst, H. W., Jr.

NSG 7093 State Univ of New York - Albany 2993
Photoelectric studies of the night glow
Period *Obligations*
12/23/74-07/30/76 FY76: \$37,457 TOTAL: \$77,457
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinberg, J. L. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Donn, B. D.

NSG 7222 State Univ of New York - Albany 2994
Two-dimensional transport and aerosol model
Period *Obligations*
02/01/76-01/31/77 FY76: \$45,000 TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiang, C. S. HQ-SU/King, J., Jr. 31-Atmos Sci
HQ-SU/Reed, E. F.

NSG 7230 State Univ of New York - Albany 2995
Extinction and the atmospheric aerosol
Period *Obligations*
03/01/76-06/30/76 FY76: \$14,133 TOTAL: \$14,133
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinberg, J. L. HQ-SU/King, J., Jr. 31-Atmos Sci
Schuerman, D. W. HQ-SU/Reed, E. F.

NSG 8040 State Univ of New York - Albany 2996
Research study of data analysis, Skylab zodiacal light experiment
Period *Obligations*
06/28/76-07/01/76 FY76: \$18,594 TOTAL: \$18,594
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Weinberg, J. L. MSFC/Gary, G. A. 11-Astronomy

NSG 9028 State Univ of New York - Albany 2997
Non-invasive technique for measurement of cardiac output for space shuttle use
Period *Obligations*
05/30/75-09/30/76 FY76: \$38,675 TOTAL: \$81,530
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Farhi, L. E. JSC/Rummel, J. A. 51-Biology

NAS 8-31292 State Univ of New York - Buffalo 2998
Electrophoresis technical experiment
Period *Obligations*
11/15/74-12/31/75 FY76: TOTAL: \$57,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bigazzi, P. E. MSFC/Allen, R. E. 51-Biology
MSFC/Rhodes, P. H.

NAS 8-31434 State Univ of New York - Buffalo 2999
Computer program for fast Karnuhen-Loeve transform algorithm
Period *Obligations*
05/02/75-02/01/76 FY76: TOTAL: \$27,498
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Jain, A. K. MSFC/Van Vleck, E. 21-Mathematics
MSFC/Jayroe, R.

NGL 33-183-013 State Univ of New York - Buffalo 3000
Lunar sample analysis
Period *Obligations*
02/01/73-01/31/77 FY76: \$6,718 TOTAL: \$78,238
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cadenhead, D. A. JSC/Harris, J. W. 12-Chemistry

NGR 33-015-002 State Univ of New York - Buffalo 3001
Studies in cellular theory and molecular mechanisms
Period *Obligations*
07/30/63-09/30/75 FY76: TOTAL: \$862,237
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Danielli, J. F. HQ-SB/Young, R. S. 12-Chemistry

NGR 33-015-108 State Univ of New York - Buffalo 3002
Planetary curriculum and related geologic research
Period *Obligations*
06/02/70-05/14/77 FY76: \$52,450 TOTAL: \$183,673
Prin. Invest. *NASA Tech. Officer* *CASE Category*
King, J. S. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Wahmann, R.

NASA'S UNIVERSITY PROGRAM **NEW YORK (Continued)**

NSG 7071 **State Univ of New York - Buffalo** **3003**
Experimental and theoretical investigation for the suppression of
plasma arc drops in thermionic converters
Period *Obligations*
07/01/74-04/15/78 FY76: \$104,050 TOTAL: \$210,928
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shaw, D. T. LERC/Morris, J. F. 13-Physics

NAS 1-10493 **State Univ of New York - Stony Brook** **3004**
Participation in the science planning for the Viking 1975 missions
in the area of molecular analysis
Period *Obligations*
01/18/71-03/31/77 FY76: \$29,677 TOTAL: \$124,121
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owens, T. LARC/Williams, T. S., Jr. 39-Env Sci, NEC
LARC/Glenney, W. R.

NAS 2-8986 **State Univ of New York - Stony Brook** **3005**
Study of cells and embryogenesis in space
Period *Obligations*
08/07/75-08/31/76 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Steward, F. C. ARC/Tremor, J. W. 51-Biology
Krikorian, A. D. ARC/Taketa, S. T.

NCA 2-760601 **State Univ of New York - Stony Brook** **3006**
Laboratory spectroscopy at ultralong path length
Period *Obligations*
03/01/76-06/30/77 FY76: \$19,500 TOTAL: \$19,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lutz, B. L. ARC/Boese, R. W. 13-Physics

NGL 33-015-082 **State Univ of New York - Stony Brook** **3007**
Study of high energy and relativistic astrophysics
Period *Obligations*
10/16/69-09/30/74 FY76: TOTAL: \$189,751
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owen, T. GSFC/Chiu, H. Y. 11-Astronomy

NGL 33-015-130 **State Univ of New York - Stony Brook** **3008**
Lunar sample analysis
Period *Obligations*
02/11/71-01/31/79 FY76: \$94,380 TOTAL: \$739,065
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bence, A. E. JSC/Harris, J. W. 13-Physics

NGL 33-015-174 **State Univ of New York - Stony Brook** **3009**
Lunar sample analysis
Period *Obligations*
02/01/73-01/31/77 FY76: \$95,500 TOTAL: \$332,656
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schaeffer, O. A. JSC/Harris, J. W. 12-Chemistry

NGR 33-015-139 **State Univ of New York - Stony Brook** **3010**
Quantitative spectroscopic measurements on the principal
constituents in planetary atmospheres
Period *Obligations*
04/12/71-05/31/78 FY76: TOTAL: \$215,090
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Varanasi, P. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NGR 33-015-141 **State Univ of New York - Stony Brook** **3011**
Spectroscopic observations of the planets
Period *Obligations*
01/26/71-06/30/77 FY76: TOTAL: \$144,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owen, T. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGR 33-015-160 **State Univ of New York - Stony Brook** **3012**
Thermodynamics and kinetics of reactions in protective coating
systems
Period *Obligations*
04/12/72-10/01/76 FY76: TOTAL: \$128,482
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Seigle, L. L. LERC/Levine, S. R. 47-Materials Engr

NGR 33-015-163 **State Univ of New York - Stony Brook** **3013**
Research on atmospheric pollution effects of turbine engine
products over range of operating altitudes
Period *Obligations*
05/22/72-03/01/76 FY76: TOTAL: \$53,544
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Berlad, A. L. LERC/Gordon, S. 39-Env Sci, NEC

NGR 33-015-165 **State Univ of New York - Stony Brook** **3014**
Planetary atmospheres research
Period *Obligations*
11/01/72-11/30/76 FY76: \$69,293 TOTAL: \$158,112
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owen, T. GSFC/Hansen, J. E. 31-Atmos Sci
GSFC/Thaddeus, P.

NGR 33-015-169 **State Univ of New York - Stony Brook** **3015**
Organic molecules in the atmosphere of Jupiter: Investigation
of colors in Jovian cloud deck
Period *Obligations*
10/16/72-11/30/76 FY76: \$25,967 TOTAL: \$80,637
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Owen, T. HQ-SB/Young, R. S. 12-Chemistry

NGR 33-015-180 **State Univ of New York - Stony Brook** **3016**
Cosmic rays in interplanetary space
Period *Obligations*
01/07/74-06/30/77 FY76: \$33,154 TOTAL: \$74,454
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Forman, M. A. HQ-SA/Sofia, S. 11-Astronomy
HQ-SA/Opp, A. G.

**NASA'S UNIVERSITY PROGRAM
NEW YORK (Continued)**

NGR 33-015-196 State Univ of New York - Stony Brook 3017
Study of novel techniques for interferometrical controlled ruling
of improved large diffraction gratings

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/74-06/30/75 | FY76: | TOTAL: \$45,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stroke, G. W. | GSFC/Mangus, J. D. | 13-Physics |

NSG 3051 State Univ of New York - Stony Brook 3018
Combustion of porous solids at reduced gravitational conditions

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/75-05/30/77 | FY76: \$24,857 | TOTAL: \$44,703 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Berlad, A. L. | LERC/Cochran, T. H. | 43-Chem Engr |

NSG 5015 State Univ of New York - Stony Brook 3019
Theoretical studies of the atmospheres of the giant planets

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/74-08/31/76 | FY76: | TOTAL: \$57,026 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hogan, J. S. | GSFC/Hansen, J. E. | 31-Atmos Sci |

NSG 5102 State Univ of New York - Stony Brook 3020
Atmospheric pollution development and applications of regional
scale dispersion models

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/01/76-02/28/77 | FY76: \$60,000 | TOTAL: \$60,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hogan, J. S. | GSFC/Stewart, R. W. | 31-Atmos Sci |

NSG 7003 State Univ of New York - Stony Brook 3021
Research in grating technology and related areas

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 11/01/73-06/30/76 | FY76: | TOTAL: \$78,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stroke, G. W. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NSG 7036 State Univ of New York - Stony Brook 3022
Lunar rock surface phenomena

| Period | Obligations | |
|-------------------|------------------------------|-------------------|
| 02/01/74-11/30/75 | FY76: | TOTAL: \$18,640 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hartung, J. B. | HQ-SM/Stuart-Alexander, D.E. | 32-Geological Sci |

NSG 7150 State Univ of New York - Stony Brook 3023
A synthesis of lunar mineral data

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 07/11/75-09/30/76 | FY76: \$43,096 | TOTAL: \$43,096 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Papike, J. J. | HQ-SL/Williams, R. J. | 32-Geological Sci |

NSG 7225 State Univ of New York - Stony Brook 3024
Argon dating of terrestrial shocked rocks

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 05/01/76-04/30/77 | FY76: \$25,916 | TOTAL: \$25,916 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schaeffer, O. A. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 9013 State Univ of New York - Stony Brook 3025
Dating of lunar cratering events and rates of lunar surface
processes

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 07/15/74-01/31/77 | FY76: \$109,700 | TOTAL: \$168,749 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hartwig, J. B. | JSC/Harris, J. W. | 32-Geological Sci |

NSG 9044 State Univ of New York - Stony Brook 3026
Petrologic and stratigraphic studies of lunar drill cores and drive
tubes

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/76-01/31/77 | FY76: \$28,500 | TOTAL: \$28,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Papike, J. J. | JSC/Harris, J. W. | 13-Physics |

NAS 5-22277 State Univ of New York - Downstate Med Ctr 3027
Redox determination of bacteriological presence in urine

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 11/13/73-11/12/74 | FY76: | TOTAL: \$4,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Fealey, R. D. | GSFC/Chen, W. T. | 52-Clinical Med |
| Damadian, R. | GSFC/Friedman, D. S. | |

NAS 9-11846 State Univ of New York - Upstate Med Ctr 3028
Analyses of urine samples for antidiuretic hormone

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/10/71-09/30/76 | FY76: \$22,878 | TOTAL: \$91,878 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Miller, M. | JSC/Leach, C. S. | 59-Life Sci, NEC |

NAS 9-12770 State Univ of New York Col - Geneseo 3029
Lunar geology eastern maria data analysis experiment

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 06/20/72-12/31/75 | FY76: | TOTAL: \$68,721 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Young, R. A. | JSC/Hardee, S. N. | 32-Geological Sci |

NGR 33-219-002 State Univ of New York Col - Geneseo 3030
Comparison of Lyman 2 and HE 1 & 10830 line structures and
variations in early type star atmosphere

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 05/14/73-11/30/76 | FY76: | TOTAL: \$6,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Meisel, D. D. | HQ-SA/Roman, N. G. | 11-Astronomy |

NASA'S UNIVERSITY PROGRAM **NEW YORK (Continued)**

NSG 5077 **State Univ of New York College - Purchase** **3031**
Spectral and Monte Carlo predictability studies

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$12,458 | TOTAL: \$12,458 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Tenenbaum, J. | GSFC/Halem, M. | 31-Atmos Sci |

NGR 33-022-157 **Syracuse University** **3032**
Application of strain range partitioning to crack propagation

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 09/01/73-11/30/76 | FY76: \$37,984 | TOTAL: \$82,211 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Liu, H. W. | LERC/Hirschberg, M. H. | 47-Materials Engr |

NSG 1194 **Syracuse University** **3033**
Study of the stress sensitivity of the coercive force of micron sized barium ferrite and bismuth manganese particles

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 07/01/75-06/30/77 | FY76: \$24,958 | TOTAL: \$49,888 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schroder, K. | LARC/Stermer, R. L. | 45-Elec Engr |

NGR 33-032-004 **Union College** **3034**
Optically pumped submillimeter waveguide maser amplifiers and oscillators

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/15/74-04/14/77 | FY76: \$24,985 | TOTAL: \$75,972 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Galantowicz, A. | GSFC/McAvoy, N. | 13-Physics |
| | GSFC/McElroy, J. H. | |

NAS 5-20028 **University of Rochester** **3035**
Optical components associated with investigation of solar phenomena in ultraviolet region

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 01/15/74-10/31/76 | FY76: \$12,150 | TOTAL: \$25,350 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Baumeister, P. W. | GSFC/Osantowski, J. F. | 13-Physics |

NGR 33-019-002 **University of Rochester** **3036**
Research on automatic remote direction bacteria including modification of detection device for chemical analysis of lunar & planetary surface materials

| Period | Obligations | |
|-------------------|--------------------|--------------------|
| 12/19/61-04/30/76 | FY76: \$36,000 | TOTAL: \$1,120,675 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hempfling, W. P. | HQ-SB/Young, R. S. | 51-Biology |

NGR 33-019-127 **University of Rochester** **3037**
50 microns, 100 microns observations of strong sources with a lamellar grating interferometer on the C-141 infrared telescope

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 03/06/73-08/31/76 | FY76: \$52,000 | TOTAL: \$132,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pipher, J. L. | ARC/Cameron, R. M. | 11-Astronomy |
| Duthie, G. J. | ARC/Gillespie, C. M., Jr. | |
| Savedoff, M. P. | | |

NSG 1211 **University of Rochester** **3038**
Time course of visual information transfer during aircraft control problems

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 06/16/75-09/01/76 | FY76: | TOTAL: \$36,632 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brown, J. L. | LARC/Gainer, P. A. | 69-Psych, NEC |
| Dick, A. O. | LARC/Spady, A. A., Jr. | |

NSG 5054 **University of Rochester** **3039**
Investigation of the radius and composition of Sirius B from far UV observations

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 01/01/75-06/30/77 | FY76: \$12,000 | TOTAL: \$14,124 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Savedoff, M. P. | GSFC/Kupperian, J. E. | 11-Astronomy |

NCA 2-823501 **Vassar College** **3040**
Visual stimulation studies

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 05/01/75-04/30/76 | FY76: | TOTAL: \$5,588 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Christensen, C. | ARC/Zill, L. P. | 51-Biology |

NCA 2-823601 **Vassar College** **3041**
Influence of visual stimulation on otolith controlled units

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 09/01/75-06/30/77 | FY76: \$5,588 | TOTAL: \$5,588 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Christensen, C. | ARC/Zill, L. P. | 59-Life Sci, NEC |

NGL 33-023-018 **Yeshiva University** **3042**
Research in space physics

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/29/66-08/31/76 | FY76: | TOTAL: \$652,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cameron, A. G. | GSFC/Hansen, J. E. | 11-Astronomy |
| | GSFC/Thaddeus, P. | |

NORTH CAROLINA

NAS 8-29286 **Appalachian State University** **3043**
Statistical studies of atmospheric variables related to Skylab and space shuttle programs

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/06/72-01/06/75 | FY76: | TOTAL: \$20,226 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kitchens, H. | MSFC/Falls, L. W. | 21-Mathematics |

NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)

NGT 34-017-001 **Bennett College** **3044**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/74-05/31/77 **FY76: \$7,000** **TOTAL: \$21,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sayles, J. H. HQ-P/Pohly, J. G. 99-Multi-Discip
HQ-U/Jenkins, H. G.

NSG 1032 **Bennett College** **3045**
Development of a laboratory transportable absorption column applicable to air sampling industrial launch sites for GLC analysis
Period *Obligations*
04/15/74-08/31/76 **FY76:** **TOTAL: \$66,785**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Greaux, A. E. LARC/Cofer, W. R., III 12-Chemistry
Duhart, B. T.

NAS 5-22475 **Duke University** **3046**
Direct energy transfer power subsystem modeling and analysis
Period *Obligations*
06/20/75-06/20/77 **FY76:** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wilson, T. G. GSFC/Rodriguez, G. E. 45-Elec Engr
Owen, H. A., Jr.

NGL 34-001-001 **Duke University** **3047**
Research on satellite electrical power conversion systems and circuit protection
Period *Obligations*
02/19/65-02/28/79 **FY76: \$70,000** **TOTAL: \$956,031**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Simonett, D. S. GSFC/Rodriguez, G. E. 45-Elec Engr
Estes, J. E. GSFC/Pasciutti, E. R.

NGR 34-001-041 **Duke University** **3048**
Research in satellite power conversion system
Period *Obligations*
02/01/72-01/31/76 **FY76:** **TOTAL: \$17,226**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
O'Foghludha, F. R. GSFC/Trombka, J. I. 11-Astronomy

NSG 1121 **Duke University** **3049**
The potential role of the helicopter in transportation
Period *Obligations*
11/08/74-12/31/76 **FY76: \$29,510** **TOTAL: \$54,105**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dajani, J. S. LARC/Snyder, W. J. 44-Civil Engr
LARC/Tapscott, R. J.

NSG 1267 **Duke University** **3050**
Methodology for classifying software errors
Period *Obligations*
01/01/76-06/30/76 **FY76: \$20,053** **TOTAL: \$20,053**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gerhart, S. L. LARC/Migneault, G. E. 21-Mathematics
LARC/Bavuso, S. J.

NSG 5020 **Duke University** **3051**
Recognition of electromagnetic signatures for tornado detection
Period *Obligations*
08/12/74-08/11/75 **FY76:** **TOTAL: \$7,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wang, P. P. GSFC/Cote, C. E. 45-Elec Engr

NSG 1179 **Elizabeth City State University** **3052**
Research program on the charge transfer excited states of transition metal complexes
Period *Obligations*
06/01/75-05/31/77 **FY76: \$20,062** **TOTAL: \$45,055**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chatterjee, K. K. LARC/Conway, E. J. 12-Chemistry

NGT 34-012-750 **North Carolina A&T State University** **3053**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/75-05/30/77 **FY76: \$14,000** **TOTAL: \$28,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Chandra, S. HQ-P/Pohly, J. G. 49-Engr, NEC
HQ-U/Jenkins, H. G.

NSG 1147 **North Carolina A&T State University** **3054**
Investigations of stimulated scattered processes as possible mechanisms in laser induced damage in nonlinear optical materials
Period *Obligations*
02/17/75-08/10/76 **FY76:** **TOTAL: \$29,973**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Yu, C. LARC/Allario, F. 13-Physics

NSG 1296 **North Carolina A&T State University** **3055**
Effect of temperature on composite sandwich structures subjected to low velocity impact
Period *Obligations*
05/17/76-05/16/77 **FY76: \$20,834** **TOTAL: \$20,834**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sharma, A. V. LARC/Rhodes, M. D. 47-Materials Engr
LARC/Mikulas, M. M., Jr.

NSG 5120 **North Carolina Central University** **3056**
Optically pumped submillimeter waves and applications
Period *Obligations*
06/07/76-06/06/77 **FY76: \$38,559** **TOTAL: \$38,559**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dutta, J. M. GSFC/McAvoy, N. 13-Physics
Jones, C. R. GSFC/McElroy, J. H.

NAS 6-2617 **North Carolina State Univ. - Raleigh** **3057**
Wind wave current interaction studies
Period *Obligations*
02/07/75-12/22/76 **FY76: \$85,881** **TOTAL: \$113,154**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hiser, H. W. WFC/Stanley, H. R. 33-Oceanography
WFC/Huang, N. E.

NASA'S UNIVERSITY PROGRAM
NORTH CAROLINA (Continued)

NAS 8-31984 North Carolina State Univ. - Raleigh 3058
 Study of satellite sensing
Period *Obligations*
 04/29/76-04/28/77 FY76: \$19,998 TOTAL: \$19,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Welby, G. MSFC/Paludan, C. T. 39-Env Sci, NEC
 MSFC/Cagle, F. A.

NGL 34-002-017 North Carolina State Univ. - Raleigh 3059
 Transverse instabilities of magnetically self-focusing streams in plasmas
Period *Obligations*
 12/03/64-02/28/76 FY76: TOTAL: \$156,871
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bennett, W. H. HQ-RR/Thom, K. 13-Physics

NGL 34-002-095 North Carolina State Univ. - Raleigh 3060
 Acoustic energy effects on sleep and human performance
Period *Obligations*
 04/11/69-08/31/76 FY76: \$28,326 TOTAL: \$355,457
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Levere, T. E. LARC/Mayes, W. H. 69-Psych, NEC

NGR 34-002-108 North Carolina State Univ. - Raleigh 3061
 Study of high-temperature materials for solid propellant rocket nozzle applications
Period *Obligations*
 06/09/69-04/30/76 FY76: TOTAL: \$129,222
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Manning, C. R., Jr. LARC/Hagginbothom, W. K., Jr.
 47-Materials Engr
 LARC/Buckley, J. D.

NGR 34-002-188 North Carolina State Univ. - Raleigh 3062
 Deployable reflector antenna study
Period *Obligations*
 10/18/72-06/30/77 FY76: \$15,018 TOTAL: \$58,026
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Herman, B. M. LARC/Croswell, W. F. 45-Elec Engr
 LARC/Bailey, M. C.

NGR 34-002-195 North Carolina State Univ. - Raleigh 3063
 Theoretical analysis of current voltage characteristics of solar cells
Period *Obligations*
 06/01/73-07/31/77 FY76: \$59,500 TOTAL: \$112,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hauser, J. R. LERC/Godlewski, M. P. 45-Elec Engr

NSG 1058 North Carolina State Univ. - Raleigh 3064
 Analyses of nuclear induced plasmas by means of kinetic theory
Period *Obligations*
 07/01/74-06/30/77 FY76: \$30,000 TOTAL: \$90,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hassan, H. A. LARC/Hohl, F. 13-Physics

NSG 1077 North Carolina State Univ. - Raleigh 3065
 Estimating the performance and dynamic response characteristics of an advanced technology light-twin aircraft and comparing it with flight test results
Period *Obligations*
 08/15/74-10/31/76 FY76: TOTAL: \$76,803
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smetana, F. O. LARC/Crane, H. L. 41-Aero Engr

NSG 1116 North Carolina State Univ. - Raleigh 3066
 Theoretical study of heterojunction and graded band gap type solar cells
Period *Obligations*
 10/14/74-01/31/77 FY76: \$20,500 TOTAL: \$41,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hauser, J. R. LARC/Hutchby, J. A. 45-Elec Engr
 LARC/Hendricks, H. D.

NSG 1133 North Carolina State Univ. - Raleigh 3067
 Wetting phenomena in metals and ceramics
Period *Obligations*
 01/15/75-07/14/76 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Manning, C. R., Jr. LARC/O'Neal, R. L. 47-Materials Engr
 LARC/Kinard, W. H.

NSG 1136 North Carolina State Univ. - Raleigh 3068
 Long duration exposure facility experiments for early space shuttle missions
Period *Obligations*
 01/15/75-06/14/76 FY76: TOTAL: \$9,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bailey, J. A. LARC/O'Neal, R. L. 47-Materials Engr
 Whitfield, J. K. LARC/Kinard, W. H.

NSG 1202 North Carolina State Univ. - Raleigh 3069
 Study of the titanium dioxide-gallium arsenide interface
Period *Obligations*
 06/01/75-05/31/77 FY76: \$16,134 TOTAL: \$31,134
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Littlejohn, M. A. LARC/Miller, W. E. 13-Physics
 LARC/Hendricks, H. D.

NSG 1205 North Carolina State Univ. - Raleigh 3070
 Research program in aeroacoustics for noise control of general aviation aircraft
Period *Obligations*
 07/01/75-06/30/77 FY76: \$29,000 TOTAL: \$58,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hart, F. D. LARC/Mayes, W. H. 13-Physics
 Bailey, J. R. LARC/Stephens, D. G.

NASA'S UNIVERSITY PROGRAM **NORTH CAROLINA (Continued)**

NSG 1287 **North Carolina State Univ. - Raleigh** **3071**
ADP techniques for calculating heat transfer rates on shuttle-type configurations using prescribed surface pressures

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/01/76-02/28/77 | FY76: \$18,381 | TOTAL: \$18,381 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dejarnette, F. R. | LARC/Walberg, G. D. | 41-Aero Engr |
| | LARC/Jones, J. J. | |

NASW 2793 **Shaw University** **3072**
Five-day symposium on Aeronautics and Space

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/02/75-05/30/75 | FY76: | TOTAL: \$15,060 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Unavailable | HQ-U/Dixon, J. T. | 99-Multi-Discip |

NSG 1033 **Shaw University** **3073**
Polyimides systems research

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 04/08/74-08/31/76 | FY76: \$25,000 | TOTAL: \$58,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chatterji, A. K. | LARC/Bell, V. L., Jr. | 12-Chemistry |
| Panayappan, R. M. | | |

NAS 8-26601 **University of North Carolina - Chapel Hill** **3074**
Passive particle dosimetry

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 11/17/70-06/30/77 | FY76: | TOTAL: \$39,792 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Childs, C. B. | MSFC/Parnell, T. A. | 13-Physics |
| | MSFC/Eby, P. B. | |

NAS 9-14697 **University of North Carolina - Chapel Hill** **3075**
Role of natriuretic peptides in the regulation of urinary sodium excretion

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/23/75-06/23/78 | FY76: | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gitelman, H. J. | JSC/Leach, C. S. | 59-Life Sci, NEC |

NORTH DAKOTA

NGR 35-001-012 **North Dakota State University** **3076**
Quantitation of buried contamination by the use of solvents

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/73-05/31/75 | FY76: | TOTAL: \$61,418 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hill, T. W. | HQ-SB/Hall, L. B. | 12-Chemistry |

OHIO

NGR 36-017-004 **Bowling Green State University** **3077**
Genetic effect of space on cells

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/01/73-10/31/76 | FY76: \$20,503 | TOTAL: \$85,503 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oster, I. I. | ARC/Miquel, J. | 51-Biology |
| | ARC/Philpott, D. E. | |

NSG 7022 **Bowling Green State University** **3078**
A radially streaming particle model for Seyfert galaxy nuclei and quasistellar objects

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 07/01/74-06/30/77 | FY76: \$37,083 | TOTAL: \$52,083 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ptak, R. L. | HQ-SA/Roman, N. G. | 11-Astronomy |
| Stoner, R. E. | HQ-SA/Rosendhal, J. D. | |

NAS 8-31802 **Case Western Reserve University** **3079**
Convective analysis of various crystal growth systems

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/15/76-03/14/77 | FY76: \$30,000 | TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ostrach, S. | MSFC/Schafer, C. F. | 46-Mech Engr |
| | MSFC/Rathz, T. J. | |

NAS 8-31907 **Case Western Reserve University** **3080**
Convection in crystal growing

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 03/15/76-03/14/77 | FY76: \$19,995 | TOTAL: \$19,995 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ostrach, S. | MSFC/Bannister, T. C. | 12-Chemistry |
| | MSFC/Facemire, B. R. | |

NGL 36-003-064 **Case Western Reserve University** **3081**
Basic scientific research in fluid physics

| Period | Obligations | |
|-------------------|---------------------|--------------------|
| 06/14/65-05/31/77 | FY76: | TOTAL: \$1,112,673 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reshotko, E. | LERC/Nichols, L. D. | 19-Phys Sci, NEC |

NGL 36-003-094 **Case Western Reserve University** **3082**
The effects of deformation on dispersion

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 10/18/66-05/31/77 | FY76: \$33,000 | TOTAL: \$254,570 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ebert, L. J. | LERC/Glasgow, T. K. | 47-Materials Engr |

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

NGR 36-027-050 Case Western Reserve University 3083
Catalysts for electrochemical generation of oxygen

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 02/22/72-03/31/77 | FY76: \$49,597 | TOTAL: \$214,597 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Yeager, E. | ARC/Quattrone, P. D. | 12-Chemistry |
| O'Grady, W. E. | | |
| Cahan, B. D. | | |

NGR 36-027-051 Case Western Reserve University 3084
Stress corrosion cracking & hydrogen embrittlement

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 06/02/72-09/30/76 | FY76: \$6,500 | TOTAL: \$51,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hehemann, R. H. | LERC/Andrews, C. W. | 47-Materials Engr |
| Truhan, J. J. | LERC/Ashbrook, R. L. | |

NGR 36-027-053 Case Western Reserve University 3085
Microelectronic bioinstrumentation systems

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 04/27/72-09/30/76 | FY76: \$50,000 | TOTAL: \$233,300 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ko, W. H. | ARC/Fryer, T. B. | 59-Life Sci, NEC |
| Hynecek, J. | ARC/Sandler, H. | |

NGR 36-027-064 Case Western Reserve University 3086
Study of effects of layer control on shock wave turbulent boundary layer interactions in supersonics inlets

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 08/01/73-07/31/77 | FY76: \$60,023 | TOTAL: \$121,769 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reshotko, E. | LERC/Bishop, A. R. | 41-Aero Engr |

NGR 36-027-068 Case Western Reserve University 3087
Far infrared maser communications technology

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 05/13/74-11/30/75 | FY76: | TOTAL: \$75,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pao, Y. H. | GSFC/McAvoy, N. | 13-Physics |
| Claspy, P. C. | | |

NGT 36-027-011 Case Western Reserve University 3088
Summer program of NASA-ASEE summer faculty fellowships

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 12/16/69-03/31/77 | FY76: \$162,250 | TOTAL: \$814,745 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Prahl, J. M. | HQ-P/Carter, C. H. | 49-Engr, NEC |

NSG 3009 Case Western Reserve University 3089
An x-ray photoelectric spectroscopy study of nickel and nickel-base alloy surface alteration in simulated hot corrosion conditions

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/74-11/30/76 | FY76: | TOTAL: \$55,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mateescu, G. D. | LERC/Kohl, F. J. | 12-Chemistry |

NSG 3027 Case Western Reserve University 3090
Processing studies on non-oxide ceramics

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 09/01/74-08/31/77 | FY76: | TOTAL: \$46,700 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mitchell, T. E. | LERC/Probst, H. B. | 47-Materials Engr |
| Ever, H. H. | LERC/Ashbrook, R. L. | |

NSG 3040 Case Western Reserve University 3091
Heat transfer characteristics of porous materials

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 10/01/74-09/30/76 | FY76: \$25,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dybbs, A. | LERC/Fortini, A. | 47-Materials Engr |

NSG 3053 Case Western Reserve University 3092
Convection phenomena at reduced gravity

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/75-05/31/77 | FY76: \$25,000 | TOTAL: \$50,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ostrach, S. | LERC/Labus, T. L. | 49-Engr, NEC |

NSG 3058 Case Western Reserve University 3093
Nacelle boattail flows

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/01/75-05/30/77 | FY76: \$30,785 | TOTAL: \$60,406 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reshotko, E. | LERC/Bober, L. J. | 41-Aero Engr |

NSG 3062 Case Western Reserve University 3094
Interactive compressor flow-field calculations

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/01/75-01/31/78 | FY76: | TOTAL: \$55,986 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Reshotko, E. | LERC/Sockol, P. M. | 41-Aero Engr |

NSG 3074 Case Western Reserve University 3095
Applications of high power lasers

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 05/29/75-08/15/77 | FY76: \$34,515 | TOTAL: \$34,515 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Angus, J. C. | LERC/Connolley, D. J. | 43-Chem Engr |
| Gallagher, N. C. | | |
| Mann, J. A., Jr. | | |

NSG 3077 Case Western Reserve University 3096
Roller bearing geometry design

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/01/75-07/31/76 | FY76: \$24,742 | TOTAL: \$24,742 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Savage, M. | LERC/Brewe, D. E. | 46-Mech Engr |
| | LERC/Scibbe, H. W. | |

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NSG 3078 Case Western Reserve University **3097**
Sampling designs for the surveillance of air pollution resources and intensity

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 08/01/75-01/31/77 | FY76: \$19,545 | TOTAL: \$19,545 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zacks, S. | LERC/Neustadter, H. E. | 21-Mathematics |
| Kedem, B. | | |
| Anbar, D. | | |

NGR 36-033-003 Central State University - Ohio **3103**
Effects of some selected atmospheric pollutants on animal population surrounding the Cleveland area

| Period | Obligations | |
|---------------------|---------------------|-----------------|
| 04/25/73-09/30/76 | FY76: \$21,584 | TOTAL: \$62,366 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Craft, T. J., Sr. | LERC/Fordyce, J. S. | 51-Biology |
| Johnson, M. A., Jr. | LERC/King, R. B. | |

NSG 3085 Case Western Reserve University **3098**
Demonstration experiment on utilization of buffer memory system for transmission of color video using moderate bandwidth communications satellite channels

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/23/75-10/22/77 | FY76: \$191,521 | TOTAL: \$191,521 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pao, J. H. | LERC/Nice, A. W. | 45-Elec Engr |

NSG 2074 Central State University - Ohio **3104**
Circadian toxicity of cerium in rat liver

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/01/75-05/31/77 | FY76: \$20,000 | TOTAL: \$39,990 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nduaguba, J. C. | ARC/Winget, C. M. | 51-Biology |

NAS 3-18547 Cleveland State University **3105**
Synthesis and optimization of spur gear tooth profile shapes for high load capacity

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 06/04/74-09/23/77 | FY76: | TOTAL: \$59,980 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kasuba, R. | LERC/Townsend, D. P. | 46-Mech Engr |

NSG 3115 Case Western Reserve University **3099**
Computer graphic techniques for visualizing and interpreting fluid flow models

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 06/30/76-06/29/79 | FY76: \$48,000 | TOTAL: \$48,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lynch, W. C. | LERC/Anderson, B. H. | 41-Aero Engr |
| Parke, F. R. | | |

NSG 3026 Hiram College **3106**
Residual stress and crystallite size change as a result of rubbing in polycrystalline metals

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 07/01/74-12/31/75 | FY76: | TOTAL: \$18,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Wheeler, D. R. | LERC/Buckley, D. H. | 47-Materials Engr |
| | LERC/Spalvins, T. | |

NSG 7035 Case Western Reserve University **3100**
Development of a generalized technology for life prediction in the high-temperature creep and fatigue range

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 05/01/74-04/30/77 | FY76: \$40,018 | TOTAL: \$107,234 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Manson, S. S. | LERC/Hirschberg, M. H. | 47-Materials Engr |
| | LERC/Halford, G. R. | |

NSG 2013 Kent State University **3107**
Transport of trace contaminants through porous media

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 03/15/74-09/15/77 | FY76: \$36,700 | TOTAL: \$64,200 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Madey, R. | ARC/Quattrone, P. D. | 12-Chemistry |

S-27376B Case Western Reserve University **3101**
Laser video link display

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/26/76-09/10/76 | FY76: \$10,000 | TOTAL: \$10,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pao, Y. H. | GSFC/McAvoy, N. | 45-Elec Engr |

NAS 9-14538 Miami University **3108**
Research on a possible mechanism of o-g sickness

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 02/15/75-04/01/77 | FY76: \$24,277 | TOTAL: \$54,053 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Parker, D. E. | JSC/Homick, J. L. | 59-Life Sci, NEC |
| | JSC/Reschke, M. F. | |

NGR 36-033-002 Central State University - Ohio **3102**
Determination of water quality in lake Erie via satellite scanning spectroscopy

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 02/28/73-09/30/75 | FY76: | TOTAL: \$39,809 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rubin, D. | LERC/Raquet, C. A. | 51-Biology |

NAS 1-14406 Ohio State University **3109**
General aviation low-speed airfoil design and development service

| Period | Obligations | |
|-------------------|----------------------|------------------|
| 06/30/76-06/29/79 | FY76: \$100,000 | TOTAL: \$100,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gregorek, G. M. | LARC/Barnwell, R. W. | 41-Aero Engr |
| Burggraf, O. R. | LARC/Pierpont, P. K. | |

NASA'S UNIVERSITY PROGRAM

OHIO (Continued)

NAS 2-8954 **Ohio State University** **3110**
 A tactical display aid for primary flight training
Period *Obligations*
 07/01/75-08/30/76 FY76: \$52,265 TOTAL: \$52,265
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gilson, R. D. ARC/Lauber, J. K. 69-Psych, NEC
 Fenton, R. E.

NASW 2435 **Ohio State University** **3117**
 GEOP-geodesy-solid-earth and ocean physics research conferences
Period *Obligations*
 07/26/72-12/31/74 FY76: TOTAL: \$28,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, I. I. HQ-ES/Murphy, J. P. 32-Geological Sci

NAS 5-20521 **Ohio State University** **3111**
 Space shuttle experiment
Period *Obligations*
 05/23/74-10/31/75 FY76: TOTAL: \$46,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fouty, R. A. GSFC/Hirschmann, E. 39-Env Sci, NEC

NGL 36-008-051 **Ohio State University** **3118**
 Stress corrosion cracking of titanium alloys
Period *Obligations*
 06/23/66-06/01/79 FY76: TOTAL: \$208,696
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Beck, F. H. LERC/Gray, H. R. 47-Materials Engr

NAS 5-21983 **Ohio State University** **3112**
 AT-S-F millimeter wave experiment
Period *Obligations*
 01/31/74-01/31/76 FY76: TOTAL: \$254,590
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Levis, C. A. GSFC/Hirschmann, E. 31-Atmos Sci
 Hodge, D. B.

NGL 36-008-093 **Ohio State University** **3119**
 Data analysis for the national geodetic satellite program
Period *Obligations*
 08/23/67-06/30/76 FY76: TOTAL: \$555,518
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, I. I. HQ-ES/Murphy, J. P. 19-Phys Sci, NEC

NAS 5-22575 **Ohio State University** **3113**
 Communications link characterization experiment
Period *Obligations*
 09/02/75-01/02/77 FY76: \$100,000 TOTAL: \$100,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hodge, D. B. GSFC/Hirschmann, E. 45-Elec Engr

NGL 36-008-138 **Ohio State University** **3120**
 Avionics antenna research space communication
Period *Obligations*
 12/23/69-11/14/76 FY76: \$74,998 TOTAL: \$295,758
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Burnside, W. D. LARC/Gilreath, M. C. 45-Elec Engr
 Richmond, J. H. LARC/Croswell, W. F.

NAS 5-23380 **Ohio State University** **3114**
 Ice and climate study/Antarctica
Period *Obligations*
 03/31/76-04/01/77 FY76: \$14,700 TOTAL: \$14,700
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rayner, J. N. GSFC/Zwally, H. J. 39-Env Sci, NEC
 GSFC/Greaves, J. R.

NGR 36-008-080 **Ohio State University** **3121**
 Millimeter-wavelength propagation studies
Period *Obligations*
 03/03/67-06/16/74 FY76: TOTAL: \$582,430
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ksienski, A. A. GSFC/Hirschmann, E. 45-Elec Engr
 Hodge, D. B.

NAS 6-2484 **Ohio State University** **3115**
 Investigation to improve existing gravity models, using GEOS altimeter data
Period *Obligations*
 04/15/74-04/14/77 FY76: \$9,500 TOTAL: \$69,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rapp, R. H. WFC/Stanley, H. R. 32-Geological Sci
 WFC/Rossi, L. C.

NGR 36-008-161 **Ohio State University** **3122**
 The direct combination of satellite and gravity data
Period *Obligations*
 05/01/71-04/30/77 FY76: \$23,037 TOTAL: \$177,999
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rapp, R. H. GSFC/Marsh, J. G. 32-Geological Sci

NAS 8-31195 **Ohio State University** **3116**
 Close grid geodynamic satellite measurement system definition
Period *Obligations*
 01/01/75-11/22/75 FY76: \$12,572 TOTAL: \$68,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, I. I. MSFC/Costes, N. C. 19-Phys Sci, NEC
 MSFC/Page, M. A.

NGR 36-008-204 **Ohio State University** **3123**
 Activity related to earth and ocean physics application program
Period *Obligations*
 10/01/73-09/30/77 FY76: \$114,000 TOTAL: \$152,506
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, I. I. HQ-ES/Murphy, J. P. 32-Geological Sci

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OHIO (Continued)

NGR 36-008-205 **Ohio State University** **3124**
 Studies of heat source driven natural convection
Period *Obligations*
 08/01/73-06/30/76 **FY76:** **TOTAL: \$12,914**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kulacki, F. A. ARC/Cassen, P. M. 19-Phys Sci, NEC
 ARC/Reynolds, R. T.

NGR 36-008-211 **Ohio State University** **3125**
 Ultrastructures of rats reared under hypergravity compared with those reared under normal gravity
Period *Obligations*
 09/01/73-10/31/76 **FY76: \$26,250** **TOTAL: \$73,437**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lim, D. ARC/Mehler, W. R. 59-Life Sci, NEC

NGT 36-008-007 **Ohio State University** **3126**
 Training of post graduate medical students in field of aerospace medicine
Period *Obligations*
 04/02/64-08/31/77 **FY76: \$73,660** **TOTAL: \$604,486**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ellingson, H. V. HQ-P/Carter, C. H. 52-Clinical Med
 HQ-SB/Winter, D. L.

NSG 1184 **Ohio State University** **3127**
 Investigation of the aerodynamic characteristics of a new general aviation airfoil in flight
Period *Obligations*
 05/01/75-03/31/77 **FY76: \$15,000** **TOTAL: \$84,106**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gregorek, G. M. LARC/Hall, A. W. 41-Aero Engr
 Weislogel, G. S.

NSG 1212 **Ohio State University** **3128**
 Identification of scientific programs to utilize the space environment
Period *Obligations*
 06/16/75-09/15/76 **FY76:** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nerem, R. M. LARC/Dibattista, J. D. 99-Multi-Discip
 Kulacki, F. A.

NSG 2162 **Ohio State University** **3129**
 Electronic search technology applicable to the SETI problem
Period *Obligations*
 06/01/76-05/30/77 **FY76: \$15,000** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Dixon, R. S. ARC/Billingham, J. 45-Elec Engr
 Kraus, J. D. ARC/Wolfe, J. H.

NSG 3005 **Ohio State University** **3130**
 Remote sensing of lake ice thickness
Period *Obligations*
 04/01/74-04/01/76 **FY76: \$10,000** **TOTAL: \$60,125**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Peake, W. H. LERC/Cooper, D. W. 45-Elec Engr
 LERC/Heighway, J. E.

NAS 1-14124 **Ohio University** **3131**
 Design, production and flight testing of omega receiver base units
Period *Obligations*
 09/05/75-09/04/76 **FY76: \$49,516** **TOTAL: \$49,516**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McFarland, R. H. LARC/Reid, H. J., Jr. 45-Elec Engr
 Burhans, R. LARC/Mace, W. D.
 Lilley, R. W.

NAS 5-20885 **Ohio University** **3132**
 Investigate the properties structure and dynamics of earth materials
Period *Obligations*
 11/11/74-12/03/76 **FY76: \$20,631** **TOTAL: \$37,631**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tanuka, T. GSFC/Bonavito, N. 13-Physics

NGR 36-009-017 **Ohio University** **3133**
 Air transportation problems with emphasis on general aviation avionics
Period *Obligations*
 02/26/71-08/31/78 **FY76: \$70,000** **TOTAL: \$352,125**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 McFarland, R. H. LARC/Reid, H. J., Jr. 45-Elec Engr
 Burhans, R. LARC/Mace, W. D.

NSG 2061 **University of Akron** **3134**
 Study of friction and abrasion of aircraft tire tread materials
Period *Obligations*
 04/01/75-09/30/76 **FY76:** **TOTAL: \$29,748**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gent, A. N. ARC/Golub, M. A. 13-Physics
 Henry, R. L. ARC/Parker, J. A.

NAS 2-7850 **University of Cincinnati** **3135**
 Theoretical and experimental study of aerodynamics
Period *Obligations*
 10/01/73-10/01/76 **FY76:** **TOTAL: \$94,990**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tabakoff, W. ARC/Burke, J. A. 41-Aero Engr

NGR 36-004-061 **University of Cincinnati** **3136**
 Research on methods of estimating stability and control derivatives of aircraft with flexible structures
Period *Obligations*
 04/21/72-08/31/77 **FY76:** **TOTAL: \$83,464**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wells, W. R. LARC/Suit, W. T. 41-Aero Engr
 LARC/Queijo, M. J.

NGR 36-004-064 **University of Cincinnati** **3137**
 Two-dimensional flow losses of a turbine with boundary layer injection
Period *Obligations*
 06/13/72-09/30/76 **FY76: \$2,091** **TOTAL: \$46,851**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Tabakoff, W. LERC/Prust, H. W., Jr. 41-Aero Engr

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NGR 36-004-068 University of Cincinnati 3138
Analytical earth satellite theory to be used for definitive orbit determination and geophysical studies

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 08/15/73-03/31/75 | FY76: | TOTAL: \$17,456 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Danielli, J. F. | GSFC/Lancaster, E. R. | 11-Astronomy |

NGR 36-004-075 University of Cincinnati 3139
Jupiter space missions support, orbit computation programs and new astrographic plate constants

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 11/01/73-05/31/76 | FY76: \$1 | TOTAL: \$31,109 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Herget, P. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HQ-SL/Fellows, R. F. | |

NSG 1185 University of Cincinnati 3140
Thermal analysis of composite panels, three-dimensional reinforced composites

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 05/01/75-09/30/76 | FY76: \$31,280 | TOTAL: \$48,635 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nayfeh, A. H. | LARC/Mikulas, M. M., Jr. | 49-Engr, NEC |
| | LARC/Bush, H. G. | |

NSG 1208 University of Cincinnati 3141
The separated supersonic turbulent boundary layer over a wavy wall

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/75-06/30/77 | FY76: | TOTAL: \$22,896 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Polak, A. | LARC/Dunavant, J. C. | 41-Aero Engr |
| Werle, M. J. | | |

NSG 3022 University of Cincinnati 3142
Investigation of a new family of semiconductor diodes based upon bulk effects of deep impurities

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/74-09/30/78 | FY76: | TOTAL: \$36,900 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Henderson, H. T. | LERC/Sundberg, G. R. | 45-Elec Engr |

NSG 3024 University of Cincinnati 3143
Research into the use of silane pyrolytic deposition methods for SiO₂ growth in the construction of stable high energy density capacitors

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/74-10/01/78 | FY76: \$31,933 | TOTAL: \$55,033 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nevin, J. H. | LERC/Grier, N. T. | 45-Elec Engr |
| Henderson, H. T. | LERC/Myers, I. T. | |

NSG 3045 University of Cincinnati 3144
A study of parameters affecting emissions from turbine engines

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 04/02/75-09/30/77 | FY76: \$30,000 | TOTAL: \$63,546 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kauffman, C. W. | LERC/Jones, R. E. | 41-Aero Engr |

NSG 3066 University of Cincinnati 3145
Study of the fluid mechanics of a radial turbine scroll

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/75-06/30/78 | FY76: | TOTAL: \$45,378 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Tabakoff, W. | LERC/Davison, H. W. | 41-Aero Engr |

NSG 3091 University of Cincinnati 3146
Study of suitable isomers for gamma ray lasers

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 12/15/75-01/15/77 | FY76: \$14,000 | TOTAL: \$14,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jha, S. | LERC/Blue, J. W. | 13-Physics |
| Boulchland, P. | LERC/Leonard, R. F. | |

NAS 3-19699 University of Dayton 3147
ATS user experiments history

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 05/15/75-05/14/77 | FY76: | TOTAL: \$46,600 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Engler, N. A. | LERC/Hein, G. F. | 73-History |

NAS 3-20365 University of Dayton 3148
Space broadcast communications technology value assessment methodology study

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 06/24/76-03/31/77 | FY76: \$95,000 | TOTAL: \$95,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Martino, J. | LERC/Stevenson, S. M. | 39-Env Sci, NEC |
| | LERC/Sivo, J. N. | |

NAS 6-2456 University of Dayton 3149
Atmospheric phenomena associated with falling spheres

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 03/25/74-10/15/76 | FY76: \$22,497 | TOTAL: \$84,462 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Chupp, E. L. | WFC/Duke, J. R. | 31-Atmos Sci |
| | WFC/Schmidlin, F. J. | |

NAS 8-31294 University of Dayton 3150
Examination of requirements and methods for reporting atmospheric information

| | | |
|----------------------|---------------------------|----------------------|
| <i>Period</i> | <i>Obligations</i> | |
| 01/16/75-10/15/76 | FY76: \$24,857 | TOTAL: \$70,496 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Leurs, J. K. | MSFC/Camp, D. W. | 41-Aero Engr |
| | MSFC/Cliff, W. C. | |

NASA'S UNIVERSITY PROGRAM
OHIO (Continued)

NAS 3-17826 **University of Toledo** **3151**
Benefit-cost methodology study with example application
Period *Obligations*
05/31/74-01/31/75 FY76: **TOTAL: \$64,850**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leininger, G. G. LERC/Ramler, J. R. 49-Engr, NEC

NAS 8-31681 **University of Toledo** **3152**
Cosmic ice and cathrate hydrate system as related to cometary physics
Period *Obligations*
10/07/75-08/06/76 FY76: \$5,250 **TOTAL: \$5,250**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Delsemme, A. H. MSFC/Hall, A. J., Jr. 13-Physics
 MSFC/Kroes, R. L.

NGR 36-010-024 **University of Toledo** **3153**
Adaptive system optimization for integrated air-breathing engine systems
Period *Obligations*
09/01/71-01/01/76 FY76: **TOTAL: \$54,074**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leininger, G. G. LERC/Willoh, R. G. 49-Engr, NEC

NGR 36-010-031 **University of Toledo** **3154**
Study of magnetic ap variable stars; the a Persei cluster
Period *Obligations*
05/01/74-05/31/75 FY76: **TOTAL: \$12,245**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Molnar, M. R. GSFC/Kupperian, J. E. 11-Astronomy

NSG 3063 **University of Toledo** **3155**
Multivariable control theory with application to airbreathing propulsion systems
Period *Obligations*
06/01/75-12/31/76 FY76: **TOTAL: \$25,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leininger, G. G. LERC/Lehtinen, B. 45-Elec Engr

NSG 3084 **University of Toledo** **3156**
Multi-variable control and sensor evaluation for integrated air breathing propulsion systems
Period *Obligations*
01/01/76-12/31/79 FY76: \$52,790 **TOTAL: \$52,790**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Leininger, G. G. LERC/Lehtinen, B. 45-Elec Engr

NSG 3099 **University of Toledo** **3157**
Energy transfer mechanism in a laser-sustained flowing-gas plasma
Period *Obligations*
03/15/76-03/14/77 FY76: \$18,604 **TOTAL: \$18,604**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rush, W. F. LERC/Connolley, D. J. 13-Physics
 LERC/Cohen, S. M.

NSG 5006 **University of Toledo** **3158**
Investigation of an ap variable star
Period *Obligations*
05/01/74-08/01/75 FY76: **TOTAL: \$1,673**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Molnar, M. R. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7041 **University of Toledo** **3159**
Measurement of the ultraviolet surface brightness of reflection nebulae with the dutch national satellite
Period *Obligations*
12/15/74-03/31/78 FY76: **TOTAL: \$9,126**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Witt, A. N. HQ-SA/Rosendhal, J. D. 11-Astronomy
 HQ-SA/Roman, N. G.

NSG 7138 **University of Toledo** **3160**
Satellite ultraviolet data analysis program
Period *Obligations*
05/01/75-04/30/77 FY76: \$9,916 **TOTAL: \$19,839**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Molnar, M. R. HQ-SA/Roman, N. G. 11-Astronomy
 HQ-SA/Rosendhal, J. D.

W-14168 **University of Toledo** **3161**
The proceedings of International Astronautical Union Colloquium
Period *Obligations*
09/01/76-08/31/77 FY76: \$4,723 **TOTAL: \$4,723**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Delsemme, A. H. HQ-SL/Fellows, R. F. 19-Phys Sci, NEC

NSG 3067 **Wilberforce University** **3162**
Synthesis of specialized organic compounds
Period *Obligations*
05/01/75-10/31/76 FY76: **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stickney, P. B. LERC/Hsu, L. C. 12-Chemistry
Aguilera, P.

NAS 2-8578 **Wright State University** **3163**
Evaluation of an antivertiginous drug in man
Period *Obligations*
09/30/74-06/30/76 FY76: \$33,986 **TOTAL: \$77,650**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beljan, J. R. ARC/Winget, C. M. 53-Other Medical

NSG 2034 **Wright State University** **3164**
Medical applications of space-related research
Period *Obligations*
07/01/74-10/01/76 FY76: \$14,876 **TOTAL: \$31,896**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Beljan, J. R. ARC/Young, D. R. 53-Other Medical

OHIO (Continued)

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|--|-------------------------------------|----------------------|
| NGT 37-004-010 | Southeastern Oklahoma State College | 3171 |
| Training of undergraduate students in sciences and engineering | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/74-05/31/76 | FY76: | TOTAL: \$28,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Robinson, J. L. | HQ-P/Pohly, J. G. | 99-Multi-Discip |
| | HQ-U/Jenkins, H. G. | |

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|--|--|----------------------|
| NSG 802 | Southeastern Oklahoma State College | 3172 |
| Analysis of thermophilic microorganisms & sterilization | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/23/74-10/01/76 | FY76: | TOTAL: \$26,009 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Robinson, J. L. | KSC/Bostwick, L. G. | 51-Biology |
| Taylor, C. E. | | |

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|---|--|----------------------|
| NAS 8-31333 | University of Oklahoma - Norman | 3173 |
| Study of the nature of atmospheric variability represented by data obtained on AVE experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/27/75-01/31/77 | FY76: \$10,000 | TOTAL: \$29,995 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Inman, R. L. | MSFC/Turner, R. E. | 31-Atmos Sci |
| | MSFC/Vaughan, W. W. | |

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|--|---------------------------|---------------------------------|----------|
| NAS 8-31377 | | University of Oklahoma - Norman | 3174 |
| Integrating upper and lower atmospheric wind profiles and statistics | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 03/17/75-03/16/77 | FY76: | TOTAL: | \$24,995 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Inman, R. L. | MSFC/Camp, D. W. | 31-Atmos Sci | |
| | MSFC/Fichtl, G. H. | | |

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|--|--|----------------------|
| NGT 37-003-760 | University of Oklahoma - Norman | 3175 |
| Training of undergraduate students in sciences and engineering | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/76-05/31/77 | FY76: \$10,500 | TOTAL: \$10,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Thomas, G. | HQ-P/Pohly, J. G. | 49-Engr, NEC |
| | HO-U/Jenkins, H. G. | |

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|---|--|------------------------|
| NSG 1183 | University of Oklahoma - Norman | 3176 |
| Piezoresistive solid state pressure sensor | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/75-01/31/77 | FY76: \$5,982 | TOTAL: \$44,077 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kahng, S. K. | LARC/Gross, C. | 45-Elec Engng |
| | LARC/Ocheltree, S. L. | |

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|---|--|------------------------|
| NASW 2881 | Southeastern Oklahoma State College | 3170 |
| Operation of the technology use studies center | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/76-12/31/76 | FY76: \$73,000 | TOTAL: \$73,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gold, C. H. | HQ-KT/Bivins, R. G. | 99-Multi-Discip |
| | HQ-KT/Voris, R. M. | |

NASA'S UNIVERSITY PROGRAM
OKLAHOMA (Continued)

OREGON

NCA 2-585501 Oregon Graduate Center 3177
Investigation into the sex differences of the pituitary-adrenal system and adaptation to stress

| Period | Obligations | |
|-------------------|----------------------|---------------|
| 09/01/74-11/30/75 | FY76: TOTAL: \$3,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Swanson, L. W. | ARC/Zill, L. P. | 51-Biology |
| Sakellaris, P. C. | | |

NCA 2-585601 Oregon Graduate Center 3178
Mechanisms mediating pituitary-adrenal responsiveness

| Period | Obligations | |
|-------------------|------------------------------|---------------|
| 12/01/75-11/30/76 | FY76: \$5,000 TOTAL: \$5,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Swanson, L. W. | ARC/Zill, L. P. | 51-Biology |

NSG 3054 Oregon Graduate Center 3179
Fabrication and surface characterization of composite refractory compounds suitable for thermionic converters

| Period | Obligations | |
|-------------------|---------------------------------|-------------------|
| 12/01/74-03/31/77 | FY76: \$60,000 TOTAL: \$119,320 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Swanson, L. W. | LERC/Morris, J. F. | 47-Materials Engr |
| McNeely, D. R. | | |

NAS 5-22319 Oregon State University 3180
Interrelationship of particles dynamics and color

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 04/11/75-10/11/76 | FY76: TOTAL: \$23,548 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zuneveld, R. V. | GSFC/Mueller, J. L. | 33-Oceanography |

NAS 9-14860 Oregon State University 3181
Assessment of the impact of increased solar ultraviolet radiation upon marine ecosystems

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 10/08/75-10/07/76 | FY76: \$60,000 TOTAL: \$60,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Van Dyke, H. | JSC/Nachtwey, D. S. | 51-Biology |

NGL 38-002-020 Oregon State University 3182
Study of elemental abundances in meteorite and terrestrial matter

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 08/26/66-02/28/78 | FY76: TOTAL: \$413,622 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schmitt, R. A. | HQ-SM/Bryson, R. P. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NGL 38-002-039 Oregon State University 3183
Lunar sample analysis

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 01/19/71-01/31/79 | FY76: \$28,000 TOTAL: \$376,250 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schmitt, R. A. | JSC/Harris, J. W. | 13-Physics |

NGL 38-002-053 Oregon State University 3184
Development and operation of an environmental remote sensing applications laboratory

| Period | Obligations | |
|-------------------|----------------------------------|-----------------|
| 03/16/72-03/31/79 | FY76: \$100,000 TOTAL: \$575,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schrumpf, B. J. | HQ-P/Vitale, J. A. | 39-Env Sci, NEC |

NSG 7178 Oregon State University 3185
Examination of the suggested modes of origin of channels found on the Moon and Mars

| Period | Obligations | |
|-------------------|--------------------------------|-------------------|
| 01/01/76-12/31/76 | FY76: \$15,360 TOTAL: \$15,360 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Komar, P. D. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| Dolan, R. | HQ-SL/Wahmann, R. | |

NAS 9-9690 University of Oregon - Eugene 3186
Operation and maintenance of NASA/MSC geophysical branch mobile laboratory

| Period | Obligations | |
|-------------------|---------------------------|-------------------|
| 06/24/69-06/30/76 | FY76: TOTAL: \$60,763 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Blank, H. R. | JSC/Teggarden, D. L., Jr. | 32-Geological Sci |

NCA 2-587601 University of Oregon - Eugene 3187
Polarization in the infrared

| Period | Obligations | |
|-------------------|------------------------------|---------------|
| 04/01/76-06/15/76 | FY76: \$2,000 TOTAL: \$2,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kemp, J. | ARC/Caroff, L. J. | 13-Physics |

NGL 38-003-022 University of Oregon - Eugene 3188
Lunar sample analysis

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 02/09/71-01/31/79 | FY76: \$81,700 TOTAL: \$437,315 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Weill, D. F. | JSC/Harris, J. W. | 13-Physics |

NGR 38-003-020 University of Oregon - Eugene 3189
Inspection of petrologically significant physical and chemical properties of the silicate melts

| Period | Obligations | |
|-------------------|----------------------------------|-------------------|
| 06/01/70-02/28/79 | FY76: \$266,049 TOTAL: \$524,424 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Weill, D. F. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NASA'S UNIVERSITY PROGRAM

OREGON (Continued)

NGR 38-003-034 **University of Oregon - Eugene** **3190**
 Measurements of far infrared upper atmosphere emission spectrum

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 02/27/73-09/01/76 | FY76: \$29,158 | TOTAL: \$131,896 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Donnelly, R. J. | ARC/Cameron, R. M. | 11-Astronomy |
| Holt, I. | ARC/Gillespie, C. M., Jr. | |
| Radostite, J. | | |

NGR 38-003-036 **University of Oregon - Eugene** **3191**
 Transition probability in multiply ionized atoms

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/03/72-08/30/76 | FY76: \$37,500 | TOTAL: \$92,500 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Crasemann, B. | ARC/Whiting, E. E. | 13-Physics |

NAS 8-30887 **University of Oregon-Health Sci. Ctr.** **3192**
 Electrokinetic characterization of aldehyde fixed red blood cells, kidney cells, lymphocytes and chamber wall coatings

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/74-03/13/76 | FY76: | TOTAL: \$32,873 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Knox, R. J. | MSFC/Allen, R. E. | 51-Biology |
| | MSFC/Howell, E. S. | |

NAS 8-31386 **University of Oregon-Health Sci. Ctr.** **3193**
 Definition of performance specifications for automated analytical electrophoresis facility

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 04/07/75-02/28/76 | FY76: | TOTAL: \$35,213 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brooks, D. E. | MSFC/Harwell, R. J. | 59-Life Sci, NEC |
| Seaman, G. V. | MSFC/Allen, R. E. | |

NAS 8-31899 **University of Oregon-Health Sci. Ctr.** **3194**
 Candidate space processing techniques for biomaterials other than preparation electrophoresis

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/09/76-10/08/76 | FY76: \$19,979 | TOTAL: \$19,979 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brooks, D. E. | MSFC/Ives, R. E. | 51-Biology |
| | MSFC/Allen, R. E. | |

PENNSYLVANIA

NAS 9-14640 **Bryn Mawr College** **3195**
 ASTP/Cosmos fundulus embryo development experiments

| Period | Obligations | |
|--------------------|--------------------|-----------------|
| 04/01/75-04/01/77 | FY76: | TOTAL: \$15,764 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oppenheimer, J. M. | JSC/Hoffman, R. A. | 51-Biology |

NSG 9005 **Bryn Mawr College** **3196**
 Petrologic investigation of feldspathic rocks from the lunar highland

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 06/15/74-02/28/77 | FY76: | TOTAL: \$7,426 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Crawford, M. L. | JSC/Harris, J. W. | 13-Physics |

NAS 3-18929 **Carnegie - Mellon University** **3197**
 Evaluation of the mechanical properties of electro-slag refined iron alloys

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 02/03/75-03/02/76 | FY76: | TOTAL: \$82,517 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bhat, G. K. | LERC/Witzke, W. | 47-Materials Engr |

NGR 39-087-003 **Carnegie - Mellon University** **3198**
 Investigation of the effects of microstructure on fracture toughness of high-strength alloys

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 05/01/68-01/31/77 | FY76: \$24,944 | TOTAL: \$224,351 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Low, J. R., Jr. | LERC/Klopp, W. D. | 47-Materials Engr |
| | LERC/Brown, W. F., Jr. | |

NGR 39-087-021 **Carnegie - Mellon University** **3199**
 Studies of heterodyne solar cell performance

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 03/26/70-04/30/77 | FY76: \$38,545 | TOTAL: \$255,816 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Feucht, D. L. | LARC/Walker, G. H. | 13-Physics |
| Milnes, A. G. | LARC/Conway, E. J. | |

NGR 39-087-047 **Carnegie - Mellon University** **3200**
 Investigation of the effects of microstructure on the fracture toughness of high strength titanium alloys

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 10/09/72-11/30/76 | FY76: | TOTAL: \$75,123 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Low, J. R., Jr. | LERC/Klopp, W. D. | 47-Materials Engr |
| Van Stone, R. H. | LERC/Brown, W. F., Jr. | |

NGR 39-087-053 **Carnegie - Mellon University** **3201**
 Special finite elements for cracks in elasto-plastic media

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 09/01/73-10/01/76 | FY76: \$42,000 | TOTAL: \$108,436 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Swedlow, J. L. | LERC/Srawley, J. E. | 46-Mech Engr |
| Osias, J. R. | LERC/Gross, B. | |

NSG 3023 **Carnegie - Mellon University** **3202**
 Steady and dynamic performance of liquid face seals

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 07/01/74-06/28/77 | FY76: | TOTAL: \$45,800 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hughes, W. F. | LERC/Ludwig, L. P. | 46-Mech Engr |
| | LERC/Zuk, J. | |

NASA'S UNIVERSITY PROGRAM PENNSYLVANIA (Continued)

NAS 1-11871 **Drexel University** **3203**
Investigation of ESSA VII radiation data for use in long term earth balance experiment
Period *Obligations*
07/25/72-05/14/76 **FY76: \$5,000** **TOTAL: \$101,865**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
House, F. B. LARC/Sweet, G. E. 31-Atmos Sci
Kohri, W. J.

NAS 1-14393 **Drexel University** **3204**
Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
04/01/76-10/31/78 **FY76: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
House, F. B. LARC/Russell, J. M., III 31-Atmos Sci
LARC/James, R. L., Jr.

NAS 5-22946 **Drexel University** **3205**
Science support for the earth radiation budget experiment on Nimbus G
Period *Obligations*
01/12/76-01/11/79 **FY76: \$10,000** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
House, F. B. GSFC/Nelson, E. D. 13-Physics

NAS 8-31235 **Drexel University** **3206**
Atmospheric variability experiment study using a numerical weather prediction model
Period *Obligations*
02/03/75-02/01/77 **FY76: \$35,000** **TOTAL: \$59,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kreitzberg, C. W. MSFC/Hill, K. 31-Atmos Sci
MSFC/Vaughan, W. W.

NSG 1240 **Drexel University** **3207**
Thermoluminescence of ozonated rubrene study
Period *Obligations*
10/01/75-07/31/76 **FY76: \$24,275** **TOTAL: \$24,275**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bandy, A. R. LARC/Rogowski, R. S. 39-Env Sci, NEC

NSG 3090 **Drexel University** **3208**
Theory for nonlinear reaction-diffusion phenomena with application to free radical recombination
Period *Obligations*
10/01/75-09/30/76 **FY76: \$27,000** **TOTAL: \$27,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rosen, G. H. LERC/Zelevnik, F. J. 21-Mathematics

NSG 6007 **Drexel University** **3209**
Electrochemical concentration cell ozone sonde performance tests
Period *Obligations*
05/01/76-09/30/76 **FY76: \$10,100** **TOTAL: \$10,100**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brandy, A. R. WFC/Holland, A. C. 31-Atmos Sci

NAS 5-20865 **Hahnemann Medical College & Hospital** **3210**
Detection of bacteria in urine by an ATP luciferase procedure
Period *Obligations*
10/18/74-04/18/77 **FY76: \$34,691** **TOTAL: \$143,494**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gutkunst, R. R. GSFC/Picciolo, G. L. 59-Life Sci, NEC

NAS 8-28654 **Lehigh University** **3211**
Electrophoresis flight experiment
Period *Obligations*
04/27/72-11/14/75 **FY76:** **TOTAL: \$150,266**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vander Hoff, J. W. MSFC/Bond, J. B. 47-Materials Engr
Micale, F. J. MSFC/Allen, R. E.

NAS 8-31706 **Lehigh University** **3212**
Space processing applications, shuttle payloads requirements specification study
Period *Obligations*
09/26/75-03/25/76 **FY76: \$4,895** **TOTAL: \$4,895**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vander Hoff, J. W. MSFC/Taylor, K. R. 19-Phys Sci, NEC
MSFC/Poe, J. W.

NAS 8-31707 **Lehigh University** **3213**
Space processing applications, shuttle payloads requirements specification study
Period *Obligations*
09/26/75-03/25/76 **FY76: \$4,895** **TOTAL: \$4,895**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Micale, E. J. MSFC/Taylor, K. K. 19-Phys Sci, NEC
Vanderhoff, J. W. MSFC/Poe, J. W.

NCA 2-380501 **Lehigh University** **3214**
Development of stress corrosion cracking test methods
Period *Obligations*
11/01/74-10/31/76 **FY76:** **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wei, R. P. ARC/Zill, L. P. 47-Materials Engr

NCA 8-123 **Lehigh University** **3215**
Research on production of monodisperse polymer colloids
Period *Obligations*
04/14/76-04/13/77 **FY76: \$7,000** **TOTAL: \$7,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Poehlein, G. W. MSFC/Cliff, W. C. 12-Chemistry
Vand, J. W.

NGL 39-007-007 **Lehigh University** **3216**
Investigation of solidification structure & eutectic alloys including consideration of properties control
Period *Obligations*
02/17/65-07/01/78 **FY76:** **TOTAL: \$417,268**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kraft, R. W. LERC/Ashbrook, R. L. 47-Materials Engr
Hertzberg, R. W.
Notis, M. R.

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NGR 39-007-011 **Lehigh University** **3217**
Investigation of fatigue-crack propagation in thin plates and shells

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 11/30/64-06/30/77 | FY76: \$30,400 | TOTAL: \$367,845 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Erdogan, F. | LARC/Illg, W. | 21-Mathematics |
| | LARC/Fichter, W. B. | |

NSG 4010 **Lehigh University** **3224**
The use of nonlinear dynamic simulation program in aircraft control system design

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 06/01/76-06/01/77 | FY76: \$1,050 | TOTAL: \$1,050 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Johnson, S. H. | DFRC/Deets, D. A. | 41-Aero Engr |
| Schuetz, R. L. | | |

NGR 39-007-043 **Lehigh University** **3218**
Shock and thermal history of unusual iron meteorites

| Period | Obligations | |
|-------------------|-------------------------------|-------------------|
| 05/24/71-03/31/78 | FY76: \$57,510 | TOTAL: \$145,875 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goldstein, J. I. | HQ-SM/Stuart-Alexander, D. E. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NGT 39-108-750 **Lincoln University** **3225**
Training of undergraduate students in sciences and engineering

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/75-05/31/77 | FY76: \$7,000 | TOTAL: \$14,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Williams, W., Jr. | HQ-P/Pohly, J. G. | 49-Engr, NEC |
| | HQ-U/Jenkins, H. G. | |

NGR 39-007-056 **Lehigh University** **3219**
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/12/71-01/31/79 | FY76: \$143,500 | TOTAL: \$342,485 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goldstein, J. I. | JSC/Harris, J. W. | 12-Chemistry |

NSG 5008 **Lincoln University** **3226**
Application of Medical Information Management System (MIMS)

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 08/01/74-08/31/76 | FY76: \$42,580 | TOTAL: \$73,580 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Frankowsky, J. W. | GSFC/Alterescu, S. | 52-Clinical Med |
| | GSFC/Freidman, D. S. | |

NGR 39-007-061 **Lehigh University** **3220**
Investigation of generation of X-rays in close binary stars

| Period | Obligations | |
|-----------------------|--------------------|-----------------|
| 03/10/73-06/30/77 | FY76: | TOTAL: \$28,965 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McCluskey, G. E., Jr. | JSC/Kondo, Y. | 11-Astronomy |

NAS 3-17855 **Pennsylvania State University** **3227**
Compressor or fan rotor wake characteristic

| Period | Obligations | |
|---------------------|----------------------|-----------------|
| 06/28/73-06/27/74 | FY76: | TOTAL: \$53,971 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lakshminarayana, B. | LERC/Heidmann, M. F. | 41-Aero Engr |
| | LERC/Gelder, T. F. | |

NGR 39-007-064 **Lehigh University** **3221**
Lunar sample analysis

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 06/07/71-01/31/77 | FY76: \$39,100 | TOTAL: \$282,630 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sclar, C. B. | JSC/Harris, J. W. | 13-Physics |

NAS 5-22304 **Pennsylvania State University** **3228**
Utilization of ERTS data for the detection and monitoring of saline seeps in Montana

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 04/15/75-06/30/76 | FY76: \$22,850 | TOTAL: \$30,844 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McMurtry, G. J. | GSFC/Schnetzler, C. C. | 32-Geological Sci |
| Applegate, D. | GSFC/Cressy, P. J. | |

NSG 1178 **Lehigh University** **3222**
Fracture problems in composite materials

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 05/16/75-09/01/76 | FY76: \$22,920 | TOTAL: \$31,360 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Arin, K. | LARC/Poe., C. C., Jr. | 47-Materials Engr |
| | LARC/Roderick, G. L. | |

NAS 5-22822 **Pennsylvania State University** **3229**
Study of nature and subsurface characters of lineaments in Pennsylvania

| Period | Obligations | |
|-------------------|------------------------|-------------------|
| 01/13/76-01/12/77 | FY76: \$35,031 | TOTAL: \$35,031 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gold, D. P. | GSFC/Podwysocki, M. H. | 32-Geological Sci |
| Alexander, S. S. | | |
| Allenby, R. J. | | |

NSG 4005 **Lehigh University** **3223**
Aircraft model prototypes which have specified handling-quality time histories

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 01/20/75-01/19/76 | FY76: | TOTAL: \$9,915 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Johnson, S. H. | DFRC/Deets, D. A. | 41-Aero Engr |

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ORIGINAL PAGE IS POOR

NGR 39-009-077 **Pennsylvania State University** **3243**
Investigation of near critical and supercritical burning of fuel droplets
Period *Obligations*
08/17/66-01/01/78 FY76: \$26,030 TOTAL: \$310,185
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Faeth, G. M. LERC/Priem, R. J. 42-Astro Engr

NGR 39-009-180 **Pennsylvania State University** **3244**
Detection of microorganisms in their natural habitat
Period *Obligations*
06/12/70-08/31/76 FY76: \$37,700 TOTAL: \$201,841
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Casida, L. E., Jr. HQ-SB/Young, R. S. 51-Biology

NGR 39-009-218 **Pennsylvania State University** **3245**
Study of mesospheric ionization in winter
Period *Obligations*
10/11/71-09/30/75 FY76: TOTAL: \$159,740
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hale, L. C. HQ-ST/Schmerling, E. R. 13-Physics
HQ-SA/Logan, W.

NGR 39-009-270 **Pennsylvania State University** **3246**
Study in jet noise
Period *Obligations*
06/25/73-06/29/77 FY76: TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Arndt, R. E. LERC/Stone, J. R. 41-Aero Engr

NGR 39-009-275 **Pennsylvania State University** **3247**
Investigation of unsteady pressure distribution on blades of an axial flow fan
Period *Obligations*
09/01/73-08/31/76 FY76: TOTAL: \$45,082
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henderson, R. E. LERC/Dittmar, J. H. 46-Mech Engr
LERC/Feiler, C. E.

NGT 39-009-141 **Pennsylvania State University** **3248**
Training of graduate students in acoustics related to aeronautical & space technology
Period *Obligations*
05/31/69-08/31/74 FY76: TOTAL: \$133,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Reethof, G. HQ-P/Carter, C. H. 99-Multi-Discip

NSG 1141 **Pennsylvania State University** **3249**
Polyphosphazenes as ultraviolet resistant polymers
Period *Obligations*
02/01/75-01/31/77 FY76: \$26,000 TOTAL: \$50,012
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Allcock, H. R. LARC/Slemp, W. S. 12-Chemistry
LARC/Johnston, N. J.

NSG 1280 **Pennsylvania State University** **3250**
Analyses of atmospheric structures related to clear-air turbulence
Period *Obligations*
02/15/76-08/14/76 FY76: \$6,486 TOTAL: \$6,486
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cahir, J. J. LARC/Davis, R. E. 31-Atmos Sci
LARC/Murrow, H. N.

NSG 1308 **Pennsylvania State University** **3251**
A proposed study of propellers for general aviation aircraft
Period *Obligations*
07/01/76-06/30/77 FY76: \$49,872 TOTAL: \$49,872
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McCormick, B. W. LARC/Fisher, B. D. 41-Aero Engr
LARC/Hall, A. W.

NSG 2122 **Pennsylvania State University** **3252**
Subfornical organ and salt/water balance
Period *Obligations*
01/01/76-12/31/76 FY76: \$18,313 TOTAL: \$18,313
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Severs, W. B. ARC/Keil, L. C. 53-Other Medical
ARC/Danellis, J. V.

NSG 3012 **Pennsylvania State University** **3253**
Compressor or fan rotor wake characteristics
Period *Obligations*
06/28/74-10/27/77 FY76: TOTAL: \$107,677
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakshminarayana, B. LERC/Heidmann, M. F. 41-Aero Engr

NSG 3016 **Pennsylvania State University** **3254**
Microstructural parameters and the impact resistance of ceramic turbine materials
Period *Obligations*
07/01/74-07/31/77 FY76: TOTAL: \$70,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bradt, R. C. LERC/Sanders, W. A. 47-Materials Engr

NSG 3031 **Pennsylvania State University** **3255**
The unsteady response of an axial flow fan to inlet distortions
Period *Obligations*
09/01/74-08/31/77 FY76: TOTAL: \$56,641
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henderson, R. E. LERC/Sanger, N. L. 41-Aero Engr

NSG 3032 **Pennsylvania State University** **3256**
Blade end wall flows in compressors
Period *Obligations*
09/01/74-08/31/77 FY76: TOTAL: \$50,801
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lakshminarayana, B. LERC/Sockol, P. M. 41-Aero Engr

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NSG 3097 **Pennsylvania State University** **3257**
Surface charge kinetics near metal-dielectric interfaces exposed to kilovolt electron flux

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 03/01/76-02/28/77 | FY76: \$22,185 | TOTAL: \$22,185 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Robinson, J. W. | LERC/Stevens, N. J. | 49-Engr, NEC |
| | LERC/Purvis, C. K. | |

NSG 6004 **Pennsylvania State University** **3258**
Studies of mesospheric ionization

| Period | Obligations | |
|-------------------|--------------------------|------------------|
| 10/01/75-09/30/76 | FY76: \$40,000 | TOTAL: \$40,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hale, L. C. | WFC/Ballance, C. W., Jr. | 19-Phys Sci, NEC |
| | WFC/Gray, J. W. | |

NSG 7078 **Pennsylvania State University** **3259**
Technical problems related to orbital capture of passive objects

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 07/01/74-12/01/76 | FY76: | TOTAL: \$70,807 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kaplan, M. | HQ-MT/Cramblitt, D. | 42-Astro Engr |

NSG 7120 **Pennsylvania State University** **3260**
Physicochemical basis for evaluating lunar petrogenesis

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 02/01/75-01/31/77 | FY76: \$29,874 | TOTAL: \$49,860 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Muan, A. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 7193 **Pennsylvania State University** **3261**
Temporal and spatial stress distribution in the lunar interior and related phenomena

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 03/01/76-02/28/77 | FY76: \$35,416 | TOTAL: \$35,416 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Alexander, S. S. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NAS 9-14979 **Temple University** **3262**
Ultraviolet radiation-induced skin cancer in experimental animals

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/26/76-04/26/77 | FY76: \$83,493 | TOTAL: \$83,493 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Urback, F. | JSC/Nachtwey, D. S. | 51-Biology |

NAS 2-7730 **University of Pennsylvania** **3263**
Biosatellite II experiments P-1017 & 1096

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 07/24/73-06/24/76 | FY76: | TOTAL: \$6,039 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brown, A. H. | ARC/Zill, L. P. | 51-Biology |
| Dahl, O. | | |

NAS 5-23479 **University of Pennsylvania** **3264**
Study of large adaptive arrays for space terminology applications

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 04/27/76-04/27/77 | FY76: \$70,000 | TOTAL: \$70,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Berkowitz, R. S. | GSFC/Durrani, S. H. | 45-Elec Engr |
| Steinberg, B. D. | | |

NAS 8-31702 **University of Pennsylvania** **3265**
Space processing applications shuttle payloads requirement specification study

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 09/26/75-04/02/76 | FY76: \$5,000 | TOTAL: \$5,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zemel, J. N. | MSFC/Taylor, K. R. | 19-Phys Sci, NEC |
| | MSFC/Poe, J. W. | |

NGR 39-010-149 **University of Pennsylvania** **3266**
Plant morphogenesis under conditions of hypo- and hypergravia

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 09/01/73-09/01/76 | FY76: \$82,245 | TOTAL: \$221,432 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brown, A. H. | ARC/Zill, L. P. | 51-Biology |
| Dahl, A. O. | | |

NSG 5064 **University of Pennsylvania** **3267**
Research in large adaptive antenna arrays

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 05/01/75-02/29/76 | FY76: | TOTAL: \$27,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Berkowitz, R. S. | GSFC/Durrani, S. H. | 45-Elec Engr |
| Steinberg, B. D. | | |

NSG 7031 **University of Pennsylvania** **3268**
Equilibria study of pseudo-brookite type minerals

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 01/29/74-07/31/74 | FY76: | TOTAL: \$2,725 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Friel, J. J. | HQ-SM/Kosofsky, L. J. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NSG 7119 **University of Pennsylvania** **3269**
Microprobe and oxygen fugacity study of armalcolite

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 11/01/74-02/28/76 | FY76: \$35,233 | TOTAL: \$43,488 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Friel, J. J. | HQ-SM/Kosofsky, L. J. | 32-Geological Sci |
| | HQ-SM/Roberson, F. I. | |

NSG 9011 **University of Pennsylvania** **3270**
Regulation of the internal oxygen and acid-base environment

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 08/01/74-12/01/76 | FY76: | TOTAL: \$80,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Lambertson, C. J. | JSC/Horrigan, D. J. | 51-Biology |

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| | | | |
|---------------------------------|--------------------|--------------------------|------|
| NAS 5-22892 | | University of Pittsburgh | 3271 |
| Laser plasma laser system study | | | |
| Period | | Obligations | |
| 02/26/76-02/26/79 | FY76: \$32,878 | TOTAL: \$32,878 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Falk, J. | GSFC/Kostiuk, T. | 43-Chem Engr | |

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|---|---------------------------------|----------------------|
| NAS 8-31703 | University of Pittsburgh | 3272 |
| Space processing applications, shuttle payloads requirements specifications study | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/26/75-06/01/76 | FY76: \$4,976 | TOTAL: \$4,976 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cassidy, W. A. | MSFC/Taylor, K. R. | 19-Phys Sci, NEC |
| | MSFC/Poe, J. W. | |

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|-----------------------------------|---------------------------|----------------------|
| NAS 9-13803 | University of Pittsburgh | 3273 |
| Ultraviolet absorption experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/21/73-06/30/76 | FY76: \$28,037 | TOTAL: \$224,537 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Donahue, T. M. | JSC/Eichelman, W. F. | 13-Physics |

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|---|---------------------------------|----------------------|
| NASW 2425 | University of Pittsburgh | 3274 |
| Operation of regional dissemination center at Pittsburgh University | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/12/73-08/31/74 | FY76: | TOTAL: \$370,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Holley, E. | HQ-KT/Holley, H. L. | 99-Multi-Discip |

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|---|---------------------------------|----------------------|
| NASW 2674 | University of Pittsburgh | 3275 |
| Operation of regional dissemination center | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/23/74-08/31/75 | FY76: \$10,500 | TOTAL: \$214,169 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-KT/Holley, H. L. | 99-Multi-Discip |

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|---|---------------------------------|----------------------|
| NASW 2838 | University of Pittsburgh | 3276 |
| Operation of an industrial applications center | | |
| <i>Period</i> | <i>Obligations</i> | |
| 11/14/75-12/31/76 | FY76: \$265,186 | TOTAL: \$265,186 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-KT/Bivins, R. G. | 99-Multi-Discip |

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|---|---------------------------------|----------------------|
| NGL 39-011-013 | University of Pittsburgh | 3277 |
| Investigation of airglow excitation mechanisms using atomic beam techniques | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/26/65-01/31/79 | FY76: \$45,000 | TOTAL: \$626,734 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Fite, W. L. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

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|--|---------------------------------|----------------------|
| NGL 39-011-030 | University of Pittsburgh | 3278 |
| Studies of excitation and collision deactivation of measurable A3 state of nitrogen in the aurora and day airglow | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/07/65-04/30/79 | FY76: \$2,334 | TOTAL: \$794,686 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Zipf, E. C., Jr. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HO-SL/Brunk, W. E. | |

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|---|---------------------------------|------------------------|
| NGL 39-011-035 | University of Pittsburgh | 3279 |
| New formulas for collision amplitudes and related quantities | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/15/69-09/30/76 | FY76: | TOTAL: \$88,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gerjuoy, E. | GSFC/Temkin, A. | 13-Physics |

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|--|---|----------------------|
| NGL 39-011-085 | University of Pittsburgh | 3280 |
| Studies relating to surfaces of moon & planets | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/17/69-03/31/77 | FY76: \$4,071 | TOTAL: \$293,078 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hapke, B. W. | HQ-SL/Williams, R. J. 32-Geological Sci | |
| Cassidy, W. A. | | |

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|-----------------------|---------------------------------|----------------------|
| NGL 39-011-160 | University of Pittsburgh | 3281 |
| Lunar sample analysis | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/73-01/31/77 | FY76: | TOTAL: \$79,995 |
| <i>Prim. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Fuller, M. | JSC/Harris, J. W. | 13-Physics |

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|------------------------------------|---------------------------|----------------------|
| NGR 39-011-113 | University of Pittsburgh | 3282 |
| Helium geocorona rocket experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/14/70-09/30/75 | FY76: | TOTAL: \$875,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Zipf, E. C., Jr. | HQ-SA/Dubin, M. | 31-Atmos Sci |
| | HQ-SA/Ott, E. J. | |

| | | |
|--|---------------------------|----------------------|
| NGR 39-011-137 | University of Pittsburgh | 3283 |
| Dissociative recombination coefficients for planetary ionospheric ions | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/28/71-05/31/77 | FY76: \$28,910 | TOTAL: \$144,263 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Biondi, M. A. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

| | | | |
|---|--|---------------------------|----------------------|
| NGR 39-011-161 | | University of Pittsburgh | 3284 |
| Laboratory studies of kinetics of tropospheric and stratospheric aircraft pollutant reactions using atomic and molecular resonance fluorescence detection | | | |
| <i>Period</i> | | <i>Obligations</i> | |
| 06/03/73-12/31/76 | | FY76: \$40,000 | TOTAL: \$160,000 |
| <i>Prin. Invest.</i> | | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kaufman, F. | | LERC/Baker, C. E. | 12-Chemistry |
| Anderson, J. G. | | | |

NASA'S UNIVERSITY PROGRAM
PENNSYLVANIA (Continued)

NGR 39-011-164 **University of Pittsburgh** **3285**
Chemically vapor deposited tantalum tungsten alloys
Period *Obligations*
06/15/73-12/18/75 **FY76:** **TOTAL: \$64,399**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meier, G. H. LERC/Stephens, J. R. 47-Materials Engr

NSG 2116 **University of Pittsburgh** **3286**
Feasibility of an instrument for the detection of the perturbative effects of planetary systems
Period *Obligations*
01/01/76-12/30/77 **FY76: \$19,269** **TOTAL: \$19,269**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gatewood, G. D. ARC/Billingham, J. 11-Astronomy

NSG 2117 **University of Pittsburgh** **3287**
Survey nearby stars for the perturbative effects of extrasolar planetary systems
Period *Obligations*
01/01/76-12/31/76 **FY76: \$27,644** **TOTAL: \$27,644**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gatewood, G. D. ARC/Black, D. 11-Astronomy
ARC/Billingham, J.

NSG 3002 **University of Pittsburgh** **3288**
Dissolved chloride and ammonium ions miniature electrodes for in situ water quality
Period *Obligations*
02/15/74-03/30/77 **FY76: \$24,924** **TOTAL: \$84,924**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liu, C. C. LERC/Fordyce, J. S. 12-Chemistry
LERC/Leibecki, H. F.

NSG 3010 **University of Pittsburgh** **3289**
Soluble reactants and products in secondary battery system
Period *Obligations*
05/01/74-07/31/75 **FY76:** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liv, C. C. LERC/O'Donnell, P. M. 12-Chemistry
LERC/Gahn, R.

NSG 6011 **University of Pittsburgh** **3290**
Studies of the physics and chemistry of the terrestrial atmosphere
Period *Obligations*
10/01/75-09/30/76 **FY76: \$147,986** **TOTAL: \$147,986**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zipf, E. C., Jr. WFC/Ballance, C. W., Jr. 19-Phys Sci, NEC
WFC/Gray, J. W.

NSG 7147 **University of Pittsburgh** **3291**
Photometric analyses of Mariner 10 images of Venus and Mercury
Period *Obligations*
06/23/75-08/31/76 **FY76: \$25,487** **TOTAL: \$32,040**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hapke, B. W. HQ-SL/Dwornik, S. E. 11-Astronomy

NSG 7203 **University of Pittsburgh** **3292**
Measurement of reflectivities of rock-forming minerals and glasses in the vacuum ultraviolet
Period *Obligations*
03/01/76-02/28/77 **FY76: \$56,979** **TOTAL: \$56,979**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hapke, B. W. HQ-SL/Williams, R. J. 32-Geological Sci
Cohen, A. J. HQ-SL/Flinn, E. A.
Rtlow, P. A.

RHODE ISLAND

NAS 1-9680 **Brown University** **3293**
Participation in the science planning for the Viking 1975 missions in the area of imaging
Period *Obligations*
03/25/70-03/31/77 **FY76: \$69,195** **TOTAL: \$486,502**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mutch, T. A. LARC/Williams, T. S., Jr. 99-Multi-Discip
LARC/Glenney, W. R.

NASW 2827 **Brown University** **3294**
Lunar science in the university geologic curriculum
Period *Obligations*
02/01/75-01/31/76 **FY76:** **TOTAL: \$19,997**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Head, J. W., III HQ-SM/Kosofsky, L. J. 32-Geological Sci
Mutch, T. A. HQ-SM/Roberson, F. I.

NGR 40-002-088 **Brown University** **3295**
Analysis of Martian geologic features of earth analogs
Period *Obligations*
10/20/69-10/31/77 **FY76: \$70,969** **TOTAL: \$228,757**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mutch, T. A. HQ-SL/Dwornik, S. E. 32-Geological Sci

NGR 40-002-093 **Brown University** **3296**
Investigation of methods for improvement of efficiency of photovoltaic cells
Period *Obligations*
02/12/70-12/31/76 **FY76: \$25,000** **TOTAL: \$132,300**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Loferski, J. J. LARC/Walker, G. H. 13-Physics
Roessler, B. LARC/Conway, E. J.

NGR 40-002-116 **Brown University** **3297**
Lunar basins processes and structure
Period *Obligations*
02/20/73-01/31/79 **FY76: \$195,490** **TOTAL: \$321,340**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Head, J. W., Jr. HQ-SL/Williams, R. J. 32-Geological Sci
Mutch, T. A. HQ-SL/Flinn, E. A.

NASA'S UNIVERSITY PROGRAM **RHODE ISLAND (Continued)**

NGR 40-002-123 **Brown University** **3298**
Lunar sample analysis
Period *Obligations*
05/01/73-01/31/77 FY76: \$32,800 TOTAL: \$107,923
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rutherford, M. J. JSC/Harris, J. W. 32-Geological Sci

NSG 1076 **Brown University** **3299**
Large-scale wavelike eddies and their near and far jet noise field
Period *Obligations*
07/01/74-07/31/76 FY76: TOTAL: \$51,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Liu, J. T. LARC/Maestrello, L. 39-Env Sci, NEC

NSG 1222 **Brown University** **3300**
Methods of fabrication of large photodiode/amplifier arrays
Period *Obligations*
08/01/75-04/30/77 FY76: \$8,400 TOTAL: \$8,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Patterson, W. R., III LARC/Kelly Iv, W. L. 45-Elec Engr

NSG 5036 **Brown University** **3301**
Super-high data compression for the transmission of data
Period *Obligations*
12/01/74-03/31/76 FY76: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cooper, D. B. GSFC/Lynch, T. J. 21-Mathematics

NSG 1008 **University of Rhode Island** **3302**
Development of three dimensional numerical pollutant transport modeling techniques for continental shelf applications
Period *Obligations*
03/01/74-09/30/76 FY76: \$19,491 TOTAL: \$38,719
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Spaulding, M. L. LARC/Suttles, J. T. 49-Engr, NEC

SOUTH CAROLINA

NSG 8004 **Benedict College** **3303**
A study of escape gas and polymetric film formation on metallic surfaces
Period *Obligations*
01/21/74-01/21/76 FY76: TOTAL: \$45,756
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kinard, J. T. MSFC/Kent, M. I. 12-Chemistry

NAS 9-13669 **Clemson University - Clemson** **3304**
High temperature hyperfiltration water reclamation unit
Period *Obligations*
08/14/73-08/15/77 FY76: \$15,000 TOTAL: \$105,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gaddis, J. L. JSC/Reveley, W. F. 46-Mech Engr
Brandon, C. A.

NAS 9-14006 **Clemson University - Clemson** **3305**
Crop status evaluations and yield predictions
Period *Obligations*
04/01/74-10/01/76 FY76: \$24,707 TOTAL: \$127,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Haun, J. R. JSC/Barnett, T. L. 39-Env Sci, NEC

NSG 1125 **Clemson University - Clemson** **3306**
Active control optimization techniques
Period *Obligations*
01/01/75-06/30/76 FY76: TOTAL: \$23,472
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rudisill, C. S. LARC/Abel, I. 41-Aero Engr
LARC/Doggett, R. V., Jr.

NSG 1297 **Clemson University - Clemson** **3307**
Crack growth in bonded isotropic and orthotropic elastic half-planes
Period *Obligations*
04/01/76-03/31/77 FY76: \$32,147 TOTAL: \$32,147
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goree, J. G. LARC/Poe, C. C., Jr. 46-Mech Engr

NSG 8021 **South Carolina State College** **3308**
Critical currents in superconducting thin films
Period *Obligations*
08/15/74-03/15/76 FY76: TOTAL: \$22,019
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Payne, J. E. MSFC/Urban, E. W. 13-Physics
MSFC/Kent, M. I.

NAS 8-28660 **University of South Carolina** **3309**
Study of microwave down-converters operating in Ku band
Period *Obligations*
04/19/72-02/28/77 FY76: \$30,000 TOTAL: \$77,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fellers, R. G. MSFC/Lowrey, D. O. 45-Elec Engr

NAS10-8354 **University of South Carolina** **3310**
In-line dynamic contamination monitoring of fluids for space system
Period *Obligations*
06/18/73-02/10/75 FY76: TOTAL: \$60,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bonnell, R. D. KSC/Jorolan, A. E. 43-Chem Engr
Neuman, L. KSC/Boggs, W. H.

NGL 41-002-003 **University of South Carolina** **3311**
Infrared spectra of molecules & materials of astrophysical interest
Period *Obligations*
05/10/65-05/31/78 FY76: \$30,517 TOTAL: \$252,988
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Durig, J. R. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NASA'S UNIVERSITY PROGRAM **SOUTH CAROLINA (Continued)**

NSG 7076 **University of South Carolina** **3312**
Paleohydrology of Mars

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 07/01/74-06/30/76 | FY76: \$24,862 | TOTAL: \$39,599 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nummedal, D. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

NSG 8007 **Fisk University** **3318**
Properties and scattering amplitudes at very high frequencies

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/03/74-06/03/76 | FY76: \$400 | TOTAL: \$50,216 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Neugebauer, G. | MSFC/Parnell, T. A. | 13-Physics |
| | MSFC/Kent, M. I. | |

NSG 7096 **University of South Carolina** **3313**
A model for the formation of protocells from glycine-rich
proteinoids

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/08/74-08/31/76 | FY76: \$25,627 | TOTAL: \$48,136 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Rohlfing, D. L. | HQ-SB/Young, R. S. | 51-Biology |

NSG 8035 **Fisk University** **3319**
Asymptotic properties of scattering amplitudes

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/02/76-06/01/77 | FY76: \$25,000 | TOTAL: \$25,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Mickens, R. E. | MSFC/Parnell, T. A. | 12-Chemistry |
| | MSFC/Kent, M. I. | |

SOUTH DAKOTA

NAS 5-23470 **South Dakota School of Mines & Tech** **3314**
An RF hydrogen discharge dissociator

| Period | Obligations | |
|-------------------|-----------------------|----------------|
| 03/23/76-04/22/77 | FY76: \$5,100 | TOTAL: \$5,100 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gruber, C. L. | GSFC/Reinhardt, V. S. | 45-Elec Engr |

NAS 8-31189 **Memphis State University** **3320**
Optimization of absorption air conditioning systems for solar
energy applications

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 09/01/74-08/31/76 | FY76: \$15,626 | TOTAL: \$41,570 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Perry, E. | MSFC/Patterson, W. C. | 46-Mech Engr |
| | MSFC/Clark, D. C. | |

NAS 5-20982 **South Dakota State University** **3315**
ERTS data follow-on investigation

| Period | Obligations | |
|-------------------|--------------------|-------------------|
| 03/10/75-01/10/77 | FY76: \$78,034 | TOTAL: \$155,034 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schmer, F. | GSFC/Gordon, F. | 32-Geological Sci |

NAS 9-13878 **Memphis State University** **3321**
Digital voice processor

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/01/74-08/31/76 | FY76: | TOTAL: \$64,700 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Morris, C. F. | JSC/Shack, P. E. | 45-Elec Engr |

NGL 42-003-007 **South Dakota State University** **3316**
Remote sensing of soils, land forms, and land use in the northern
great plains in preparation for ERTS applications

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 07/27/70-06/30/79 | FY76: | TOTAL: \$850,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Myers, V. I. | HQ-P/Vitale, J. A. | 39-Env Sci, NEC |

NGT 43-014-750 **Tennessee State University** **3322**
Training of undergraduate students in sciences and engineering

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/01/75-05/30/77 | FY76: \$14,000 | TOTAL: \$28,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Clark, Y. Y. | HQ-P/Pohly, J. G. | 49-Engr, NEC |
| | HQ-U/Jenkins, H. G. | |

TENNESSEE

NGR 43-021-002 **Fisk University** **3317**
Optical effect of contamination of infrared windows by materials
in outer space

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 11/01/73-12/31/76 | FY76: \$25,413 | TOTAL: \$73,214 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Silberman, E. | MSFC/Kroes, R. L. | 13-Physics |
| | MSFC/Kent, M. I. | |

NSG 8012 **Tennessee State University** **3323**
Applications of acoustic emission to space flight hardware

| Period | Obligations | |
|-------------------|-----------------------|------------------|
| 06/03/74-07/01/77 | FY76: \$22,500 | TOTAL: \$114,457 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Houghton, R. | MSFC/Humphries, W. R. | 46-Mech Engr |
| Packman, P. F. | MSFC/Kent, M. I. | |

NSG 8032 **Tennessee State University** **3324**
An investigation of the motion of small particles as related to
the formulation of zero gravity experiments

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 01/01/76-12/31/76 | FY76: \$45,894 | TOTAL: \$45,894 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Busby, M. R. | MSFC/Cliff, W. C. | 46-Mech Engr |
| | MSFC/Kent, M. I. | |

**NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)**

**REPRODUCIBILITY OF THE
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NAS 8-31252 Tennessee Technological University 3325
Data buoy hardware feasibility study
Period *Obligations*
11/27/74-09/26/75 FY76: TOTAL: \$6,375
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Childress, R. Q. MSFC/Kadrmaz, K. A. 45-Elec Engr
MSFC/Morton, R. R.

NAS 8-31564 Tennessee Technological University 3326
Study of utilization of solar energy for residential heating and cooling application
Period *Obligations*
07/01/75-09/15/76 FY76: \$9,890 TOTAL: \$19,890
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Griggs, E. I. MSFC/Humphries, W. R. 31-Atmos Sci

NCA 8-102 Tennessee Technological University 3327
Study of the heat transfer characteristics of a PCM thermal capacitor
Period *Obligations*
11/08/74-10/07/75 FY76: TOTAL: \$23,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Griggs, E. I. MSFC/Humphries, W. R. 45-Elec Engr

NGR 43-003-015 Tennessee Technological University 3328
Investigation of open-loop amplification of Reynolds number dependent processes
Period *Obligations*
09/16/71-12/31/76 FY76: \$25,000 TOTAL: \$107,750
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Purdy, K. R. LERC/Priem, R. J. 46-Mech Engr
Ventrice, M. B.

NAS 5-20672 University of Tennessee - Knoxville 3329
Molecular absorption parameters study
Period *Obligations*
07/29/74-08/31/77 FY76: \$9,000 TOTAL: \$22,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Fox, K. GSFC/Kunde, V. G. 31-Atmos Sci
GSFC/Hanel, R. A.

NAS 8-27296 University of Tennessee - Knoxville 3330
Vibration effects on strapdown navigation accuracy
Period *Obligations*
04/16/71-08/31/76 FY76: \$28,439 TOTAL: \$245,423
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kennedy, E. J. MSFC/Hertsgaard, H. B. 42-Astro Engr
Blalock, T. V. MSFC/Gaines, B. J.

NAS 8-29271 University of Tennessee - Knoxville 3331
Application of image enhancement techniques to remote manipulation operations
Period *Obligations*
01/08/73-01/15/77 FY76: \$45,745 TOTAL: \$120,648
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gonzalez, R. C. MSFC/Huggins, C. T. 45-Elec Engr
MSFC/Borelli, M. T.

NAS 8-29584 University of Tennessee - Knoxville 3332
Study of wind profiles over nonuniform surface relative to ground design of aircraft & space vehicles
Period *Obligations*
02/02/73-06/30/77 FY76: \$115,029 TOTAL: \$341,824
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frost, W. MSFC/Fichtl, G. H. 46-Mech Engr
MSFC/Alexander, M.

NAS 8-29632 University of Tennessee - Knoxville 3333
Teleoperator equations of motion
Period *Obligations*
05/07/73-09/31/74 FY76: TOTAL: \$29,861
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hung, J. C. MSFC/Ellsworth, D. J. 46-Mech Engr

NAS 8-31143 University of Tennessee - Knoxville 3334
Use of ERTS data to update and map the wetlands of western Tennessee
Period *Obligations*
10/21/74-12/31/76 FY76: \$20,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rehder, J. B. MSFC/Escue, W. T. 39-Env Sci, NEC
MSFC/Downs, S. W., Jr.

NAS 8-31718 University of Tennessee - Knoxville 3335
Thunderstorm modeling and satellite ground truth cloud studies
Period *Obligations*
11/14/75-12/17/76 FY76: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frost, W. MSFC/Hill, K. 31-Atmos Sci

NAS 8-31980 University of Tennessee - Knoxville 3336
Tennessee remote sensing applications research
Period *Obligations*
04/13/76-04/12/77 FY76: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shahroki, F. MSFC/Paludan, C. T. 39-Env Sci, NEC
MSFC/Daniels, J. L., Jr.

NAS 8-32118 University of Tennessee - Knoxville 3337
Natural wind environment criteria for the design of wind machines
Period *Obligations*
06/28/76-04/28/77 FY76: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Frost, W. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Alexander, M.

NGL 43-001-006 University of Tennessee - Knoxville 3338
Spectroscopic studies of life shape of atmospheric gases & of absorption bands of inorganic solids
Period *Obligations*
01/07/64-09/30/78 FY76: \$75,000 TOTAL: \$1,243,628
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Gailar, N. M. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NASA'S UNIVERSITY PROGRAM

TENNESSEE (Continued)

NGL 43-001-140 **University of Tennessee - Knoxville** **3339**
Experimental investigations of opaque minerals and cooling history of lunar rocks

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/73-01/31/79 | FY76: \$113,100 | TOTAL: \$299,100 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Taylor, L. A. | JSC/Harris, J. W. | 11-Astronomy |

NGR 43-001-134 **University of Tennessee - Knoxville** **3340**
Research on fan noise caused by fluctuating lift, inlet turbulence, and distortion

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/27/73-08/31/77 | FY76: | TOTAL: \$47,060 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lumsdaine, E. | LERC/Dittmar, J. H. | 41-Aero Engr |

NGR 43-001-135 **University of Tennessee - Knoxville** **3341**
Research in aeroacoustics

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/08/73-08/31/76 | FY76: | TOTAL: \$48,840 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Maus, J. R. | LERC/Reshotko, M. | 41-Aero Engr |

NSG 1081 **University of Tennessee - Knoxville** **3342**
Investigation of inlet noise suppression using high subsonic Mach numbers

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/15/74-09/30/76 | FY76: \$26,000 | TOTAL: \$51,180 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lumsdaine, E. | LARC/Clark, L. R. | 41-Aero Engr |

NSG 1163 **University of Tennessee - Knoxville** **3343**
Comparison of the fracture toughness of metal-matrix composites as determined by four different techniques

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/75-09/30/76 | FY76: | TOTAL: \$47,255 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Wright, M. A. | LARC/Newman, J. C., Jr. | 47-Materials Engr |

NSG 1171 **University of Tennessee - Knoxville** **3344**
Study of tandem blades for helicopter rotors

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/01/75-05/31/77 | FY76: \$37,425 | TOTAL: \$70,465 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Lumsdaine, E. | LARC/Hammond, C. E. | 41-Aero Engr |

NSG 1224 **University of Tennessee - Knoxville** **3345**
A study of unsteady transonic flow analysis

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/07/75-11/06/76 | FY76: \$21,470 | TOTAL: \$21,470 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kimble, K. R. | LARC/Bland, S. R. | 41-Aero Engr |
| Wu, J. M. | | |

NSG 1261 **University of Tennessee - Knoxville** **3346**
Finite element solution of uniformly parabolic differential equations

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 12/01/75-11/30/76 | FY76: \$16,692 | TOTAL: \$16,692 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Baker, A. J. | LARC/Smith, R. E. | 21-Mathematics |
| | LARC/Shoosmith, J. N. | |

NSG 5002 **University of Tennessee - Knoxville** **3347**
Research of the architecture and data processing alternatives for the TSE computer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/74-08/31/76 | FY76: \$56,692 | TOTAL: \$112,576 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Bodenheimer, R. E. | GSFC/Schaefer, D. H. | 21-Mathematics |
| Gonzalez, R. C. | | |

NSG 5040 **University of Tennessee - Knoxville** **3348**
The on-board determination of the orbit of a satellite using Chebyshev series

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/75-01/31/76 | FY76: \$9,086 | TOTAL: \$27,086 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Feagin, T. | GSFC/Velez, C. E. | 49-Engr, NEC |
| Berger, P. E. | GSFC/Fuchs, A. J. | |
| Lowder, H. E., Jr. | | |

NSG 7049 **University of Tennessee - Knoxville** **3349**
Line identification and lifetime measurements in the XUV and soft X-ray regions

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/01/74-12/31/76 | FY76: | TOTAL: \$37,251 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Sellin, I. A. | HQ-ST/Timothy, A. F. | 11-Astronomy |

NAS 5-22495 **University of Tennessee - Memphis** **3350**
Programmable data collection platform study

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/26/75-11/17/76 | FY76: \$34,699 | TOTAL: \$79,699 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rochelle, R. W. | GSFC/Allen, W. K. | 31-Atmos Sci |

NAS 9-14918 **University of Tennessee - Memphis** **3351**
Investigation of toxicity of the pyrolysis products of spacecraft materials

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/76-01/31/77 | FY76: \$50,000 | TOTAL: \$50,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Austian, J. | JSC/Kaplan, H. L. | 12-Chemistry |
| Lawrence, W. H. | | |

NASA'S UNIVERSITY PROGRAM
TENNESSEE (Continued)

NAS 8-30656 **Vanderbilt University** **3352**
Study of diffusion coefficients of glasses under zero-g
Period *Obligations*
06/01/74-09/30/76 FY76: \$20,000 TOTAL: \$64,647
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kinser, D. L. MSFC/Nichols, R. L. 13-Physics
MSFC/King, H. M.

NAS 8-30883 **Vanderbilt University** **3353**
Discrete component bonding and thick-film materials study
Period *Obligations*
06/26/74-10/01/76 FY76: \$20,000 TOTAL: \$34,954
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kinser, D. L. MSFC/Caruso, S. V. 47-Materials Engr
MSFC/Filip, G. L.

NSG 1232 **Vanderbilt University** **3354**
Nuclear pumped lasers
Period *Obligations*
08/05/75-08/04/77 FY76: \$27,707 TOTAL: \$27,707
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, J. H. LARC/Hohl, F. 13-Physics

NSG 1235 **Vanderbilt University** **3355**
Production and diagnostics of dense nuclear plasmas
Period *Obligations*
09/01/75-08/31/76 FY76: \$57,065 TOTAL: \$57,065
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lee, J. H. LARC/Hohl, F. 13-Physics

TEXAS

NAS 9-10537 **Baylor College of Medicine** **3356**
Study of human adrenal control mechanisms
Period *Obligations*
04/23/70-09/30/76 FY76: \$20,700 TOTAL: \$165,290
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Campbell, B. O. JSC/Leach, C. S. 52-Clinical Med

NAS 9-11201 **Baylor College of Medicine** **3357**
Radioisotopic study
Period *Obligations*
06/30/70-10/31/76 FY76: \$10,000 TOTAL: \$95,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, P. C. JSC/Leach, C. S. 59-Life Sci, NEC

NAS 9-13452 **Baylor College of Medicine** **3358**
Neurophysiological research relating performance to stress
Period *Obligations*
05/24/73-05/31/76 FY76: TOTAL: \$105,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roessler, R. JSC/Shumate, W. H. 53-Other Medical

NAS 9-13540 **Baylor College of Medicine** **3359**
Critical analysis of amino acid excretion patterns
Period *Obligations*
06/28/73-08/31/76 FY76: TOTAL: \$59,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Di Ferrante, N. JSC/Leach, C. S. 59-Life Sci, NEC

NAS 9-13737 **Baylor College of Medicine** **3360**
Analysis of body calcium
Period *Obligations*
02/01/74-08/02/76 FY76: \$36,304 TOTAL: \$201,304
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Johnson, P. C. JSC/Smith, M. C., Jr. 53-Other Medical
Scheld, W. JSC/Hoffman, R. A.

NAS 9-14322 **Baylor College of Medicine** **3361**
Cellular immune response study
Period *Obligations*
08/01/74-11/30/76 FY76: \$100,000 TOTAL: \$200,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Criswell, B. S. JSC/Kimzey, S. L. 52-Clinical Med

NAS 9-14368 **Baylor College of Medicine** **3362**
Study of lymphocyte heterogeneity morphological and functional correlations
Period *Obligations*
11/01/74-10/31/76 FY76: \$54,570 TOTAL: \$82,570
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rich, R. R. JSC/Kimzey, S. L. 53-Other Medical
Talletta, J. M.

NAS 9-14406 **Baylor College of Medicine** **3363**
ASTP experiment 032
Period *Obligations*
03/10/75-03/01/76 FY76: TOTAL: \$29,051
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, R. R. JSC/Kimzey, S. L. 53-Other Medical

NAS 9-14407 **Baylor College of Medicine** **3364**
Evaluation of primary irritancy and allergenicity of materials proposed for crew apparel
Period *Obligations*
09/19/74-04/18/77 FY76: \$11,000 TOTAL: \$20,978
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duncan, W. C. JSC/Kaplan, H. L. 52-Clinical Med

NAS 9-14468 **Baylor College of Medicine** **3365**
ASTP experiment 031
Period *Obligations*
03/10/75-03/01/76 FY76: TOTAL: \$53,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Criswell, B. S. JSC/Kimzey, S. L. 53-Other Medical

NASA'S UNIVERSITY PROGRAM

TEXAS (Continued)

NAS 9-14546 **Baylor College of Medicine** **3366**
 Etiological study of motion sickness by using subhuman primates
Period *Obligations*
 05/01/75-04/30/77 FY76: \$34,494 TOTAL: \$64,494
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Igarashi, M. JSC/Homick, J. L. 51-Biology

NAS 9-14603 **Baylor College of Medicine** **3367**
 Biomedical study concerning aberrations of immunological functions associated with space flight
Period *Obligations*
 06/01/75-06/30/76 FY76: TOTAL: \$29,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gentry, L. O. JSC/Kimzey, S. L. 53-Other Medical

NAS 9-14662 **Baylor College of Medicine** **3368**
 Influence of the external parameters of space flight on the regulation of blood volume
Period *Obligations*
 06/01/75-09/30/76 FY76: TOTAL: \$59,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Johnson, P. C. JSC/Kimzey, S. L. 52-Clinical Med

NAS 9-14715 **Baylor College of Medicine** **3369**
 Renal response to actual and simulated space flight
Period *Obligations*
 06/16/75-08/31/76 FY76: TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Suki, W. N. JSC/Leach, C. S. 59-Life Sci, NEC

NAS 9-14820 **Baylor College of Medicine** **3370**
 Bioprocessing development immune/cellular applications
Period *Obligations*
 10/16/75-10/16/76 FY76: \$29,623 TOTAL: \$29,623
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Twomey, J. J. JSC/Morrison, D. R. 51-Biology

NAS 9-15046 **Baylor College of Medicine** **3371**
 Effects of alterations in preload and afterload on ventricular function
Period *Obligations*
 06/01/76-06/01/77 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Alexander, J. K. JSC/Hoffler, G. W. 53-Other Medical

NGR 44-032-013 **Bishop College** **3372**
 Relationship of tissue growth stimulant to stress reactions in space
Period *Obligations*
 09/01/73-08/31/76 FY76: \$20,000 TOTAL: \$88,761
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kutsky, R. J. ARC/Danellis, J. V. 51-Biology
 ARC/Holton, E. M.

NGR 44-095-001 **Hardin - Simmons University** **3373**
 Study of psychophilic organisms isolated from manufacture and assembly areas of spacecraft to be used in the Viking missions
Period *Obligations*
 08/21/72-10/31/76 FY76: \$105,000 TOTAL: \$253,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Foster, T. L. HQ-SB/Hall, L. B. 51-Biology
 HQ-SL/Gallagher, S. G.

NGR 44-081-001 **Houston Baptist University** **3374**
 Research in stellar ultraviolet spectroscopy
Period *Obligations*
 05/20/70-06/30/77 FY76: \$38,000 TOTAL: \$189,335
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Modisette, J. L. JSC/Kondo, Y. 11-Astronomy

NGR 44-081-005 **Houston Baptist University** **3375**
 Analysis of Copernicus OA011 data on the MG 11 resonance doublet at 2802 and 2795A, in early type stars
Period *Obligations*
 01/21/74-01/20/77 FY76: TOTAL: \$7,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Modisette, J. L. JSC/Kondo, Y. 11-Astronomy

NSG 9038 **Houston Baptist University** **3376**
 Obtaining high spatial resolution planetary imagery with potential shuttle era instrumentation
Period *Obligations*
 01/01/76-12/31/76 FY76: \$14,250 TOTAL: \$14,250
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Morgan, T. H. JSC/Potter, A. E. 11-Astronomy

NGR 44-087-002 **Pan American University** **3377**
 Diffuse reflectance spectra of frosts occurring on astronomical objects
Period *Obligations*
 01/01/74-12/31/76 FY76: \$32,640 TOTAL: \$87,861
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Glaser, F. M. JPL/Huntress, W. T. 32-Geological Sci

NSG 9033 **Pan American University** **3378**
 Experimental tests and model calculations on wheat varieties grown in India/Pakistan and Texas
Period *Obligations*
 08/28/75-08/31/76 FY76: \$34,000 TOTAL: \$34,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lemaster, E. W. JSC/Potter, A. E. 39-Env Sci, NEC

NGT 44-033-750 **Prairie View A&M University** **3379**
 Training of undergraduate students in sciences and engineering
Period *Obligations*
 06/01/75-05/31/77 FY76: \$14,000 TOTAL: \$28,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Greaux, A. E. HQ-P/Pohly, J. G. 49-Engr, NEC
 HQ-U/Jenkins, H. G.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NSG 9006 **Prairie View A&M University** **3380**
Measurement of growth morphological and bi-directional scattering parameters of wheat
Period *Obligations*
06/01/74-10/31/76 **FY76: \$30,000** **TOTAL: \$63,019**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sohel, M. S. JSC/Potter, A. E. 39-Env Sci, NEC
Brams, E.

NAS 2-8676 **Rice University** **3381**
Research study on metabolism and energetics in hypogravity
Period *Obligations*
12/23/74-09/30/76 **FY76: \$15,000** **TOTAL: \$44,999**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ward, C. H. ARC/Taketa, S. T. 53-Other Medical

NAS 5-9317 **Rice University** **3382**
Reduction and analysis of data from OGO-C&D ion chamber experiment
Period *Obligations*
03/23/66-12/01/78 **FY76:** **TOTAL: \$201,552**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, H. R., Jr. GSFC/Meese, K. J. 32-Geological Sci

NAS 5-23338 **Rice University** **3383**
Theoretical predictions and data analysis
Period *Obligations*
02/04/74-01/31/77 **FY76:** **TOTAL: \$4,200**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cloutier, P. A. GSFC/Taylor, H. A., Jr. 13-Physics
Michel, F. C.

NAS 6-1667 **Rice University** **3384**
Investigation into relationship between field aligned currents and auroral particle fluxes
Period *Obligations*
07/23/69-06/30/76 **FY76: \$190,000** **TOTAL: \$1,704,809**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, H. R., Jr. WFC/Ballance, C. W., Jr. 11-Astronomy
Cloutier, P. A. WFC/Gray, J. W.

NAS 8-31679 **Rice University** **3385**
Man/machine interface study
Period *Obligations*
11/06/75-05/05/76 **FY76: \$22,974** **TOTAL: \$22,974**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, H. R., Jr. MSFC/Roberts, W. T. 13-Physics

NAS 8-32030 **Rice University** **3386**
Thermodynamic property determination in low gravity
Period *Obligations*
05/23/76-10/28/76 **FY76: \$10,967** **TOTAL: \$10,967**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Margrave, J. L. MSFC/Berge, L. H. 13-Physics
MSFC/Snyder, R. S.

NAS 9-11827 **Rice University** **3387**
Adsorption bed models used in simulation of atmospheric control systems
Period *Obligations*
05/10/71-12/31/77 **FY76:** **TOTAL: \$74,860**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Davis, S. H. JSC/Kissinger, L. D. 43-Chem Engr

NAS 9-12776 **Rice University** **3388**
Applied mathematics in classification analysis
Period *Obligations*
05/26/72-07/31/76 **FY76: \$61,500** **TOTAL: \$351,420**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lynn, M. S. JSC/Baker, K. 21-Mathematics

NAS 9-12912 **Rice University** **3389**
Germ-free plant study
Period *Obligations*
06/19/72-05/31/76 **FY76:** **TOTAL: \$20,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ward, C. H. JSC/Zieglschmid, J. F. 51-Biology

NGL 44-006-001 **Rice University** **3390**
Research on physics of solid materials including study of basic laws governing behavior of solids at high temperatures
Period *Obligations*
05/01/72-06/30/78 **FY76:** **TOTAL: \$4,550,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rorschach, H. E. LERC/Lad, R. A. 13-Physics

NGL 44-006-012 **Rice University** **3391**
Laboratory development of solar wind heavy-ion mass spectrometer
Period *Obligations*
06/27/64-06/30/78 **FY76: \$56,000** **TOTAL: \$1,258,736**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Michel, F. C. HQ-ST/Cauffman, D. P. 13-Physics
HQ-ST/Schmerling, E. R.

NGL 44-006-127 **Rice University** **3392**
Lunar fines, their origin, evolution, and interaction with solar wind and cosmic rays
Period *Obligations*
02/16/71-01/31/77 **FY76: \$23,200** **TOTAL: \$421,749**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heymann, D. JSC/Harris, J. W. 32-Geological Sci

NGR 44-006-137 **Rice University** **3393**
Analysis of data on the magnetotail and solar wind
Period *Obligations*
12/29/70-12/31/76 **FY76: \$40,000** **TOTAL: \$197,697**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dessler, A. J. HQ-ST/Cauffman, D. P. 13-Physics
HQ-ST/Schmerling, E. R.

NASA'S UNIVERSITY PROGRAM **TEXAS (Continued)**

NGR 44-006-156 **Rice University** **3394**
 Photoionization of atoms in metastable states
Period *Obligations*
 06/21/72-06/30/76 **FY76:** **TOTAL: \$168,049**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Stebbings, R. F. JSC/Hudson, R. D. 13-Physics

NSG 7015 **Rice University** **3395**
 Nuclear gamma-ray astronomy prospects for HEAO-B
Period *Obligations*
 04/01/74-07/31/77 **FY76: \$17,121** **TOTAL: \$42,121**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Clayton, D. D. HQ-SA/Sofia, S. 11-Astronomy

NSG 7025 **Rice University** **3396**
 Investigation of lunar, terminator and nightside particle fluxes and surface interactions
Period *Obligations*
 03/01/74-02/28/76 **FY76:** **TOTAL: \$58,926**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Lenzen, K. H. HQ-SM/Stuart-Alexander, D. E. 31-Atmos Sci
 Siegel, W. HQ-SM/Roberson, F. I.

NSG 7032 **Rice University** **3397**
 Apollo data synthesis: Lunar atmosphere and ionosphere
Period *Obligations*
 04/01/74-05/31/77 **FY76:** **TOTAL: \$19,861**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Michel, F. C. HQ-SL/Williams, R. J. 31-Atmos Sci
 Manka, R. H.

NSG 7043 **Rice University** **3398**
 Research on planetary atmospheres
Period *Obligations*
 03/01/74-02/28/79 **FY76: \$79,204** **TOTAL: \$160,275**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Chamberlain, J. W. HQ-SL/Fellows, R. F. 31-Atmos Sci
 HQ-SL/Brunk, W. E.

NSG 7157 **Rice University** **3399**
 Analysis and synthesis of Apollo lunar surface experiments package suprathemal ion
Period *Obligations*
 07/01/75-04/30/77 **FY76: \$119,736** **TOTAL: \$119,736**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Freeman, J. W., Jr. HQ-ST/Williams, R. J. 32-Geological Sci
 Hills, H. K. HQ-SL/Flinn, E. A.

NSG 9039 **Saint Mary's University** **3400**
 X-ray diffraction studies of shocked lunar analogs
Period *Obligations*
 01/10/76-01/09/77 **FY76: \$19,800** **TOTAL: \$19,800**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hanss, R. E. JSC/Horz, F. 32-Geological Sci

NSG 1206 **Southern Methodist University** **3401**
 Fabrication and evaluation of gallium arsenide solar cells with solution-grown germanium doped P-region
Period *Obligations*
 08/01/75-01/31/77 **FY76: \$14,916** **TOTAL: \$25,416**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ashley, K. L. LARC/Walker, G. H. 45-Elec Engr
 LARC/Conway, E. J.

NSG 2006 **Southern Methodist University** **3402**
 Monitoring of the Dallas/Fort Worth regional airport
Period *Obligations*
 02/01/74-03/31/77 **FY76: \$18,439** **TOTAL: \$49,666**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Starling, J. ARC/Tanner, T. A. 79-Soc Sci, NEC

NGT 44-073-750 **Texas A&I University** **3403**
 Training of undergraduate students in sciences and engineering
Period *Obligations*
 06/01/75-05/31/77 **FY76: \$7,000** **TOTAL: \$14,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Franke, E. A. HQ-P/Pohly, J. G. 49-Engr, NEC
 HQ-U/Jenkins, H. G.

NAS 1-14185 **Texas A&M University** **3404**
 Terminator orbit polarimetric study
Period *Obligations*
 10/16/75-07/01/76 **FY76: \$24,510** **TOTAL: \$24,510**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kattawar, G. W. LARC/Staylor, W. F. 42-Astro Engr
 Plass, G. N.
 Ams, A. D.

NAS 5-20796 **Texas A&M University** **3405**
 ERTS follow-on investigation
Period *Obligations*
 01/15/75-11/15/76 **FY76: \$14,375** **TOTAL: \$111,375**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rouse, J. GSFC/Stonesifer, G. R. 59-Life Sci, NEC

NAS 5-22534 **Texas A&M University** **3406**
 LANDSAT data analysis
Period *Obligations*
 08/21/75-02/21/77 **FY76: \$54,222** **TOTAL: \$54,222**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Harwood, P. GSFC/Gordon, F. 39-Env Sci, NEC

NAS 5-22840 **Texas A&M University** **3407**
 Domonic system extension to improve performance, evaluate software reliability and expand documentation capabilities
Period *Obligations*
 11/10/75-11/10/76 **FY76: \$149,451** **TOTAL: \$149,451**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Simmons, D. B. GSFC/Damon, E. P. 21-Mathematics
 Elliott, R. W.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 5-22966 **Texas A&M University** **3408**
Nimbus G EXP team
Period *Obligations*
02/10/76-02/10/79 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
El-Sayed, S. Z. GSFC/Hovis, W. A. 31-Atmos Sci

NAS 5-23458 **Texas A&M University** **3409**
Analysis of synthetic aperture radar imagery
Period *Obligations*
04/14/76-04/15/77 FY76: \$21,991 TOTAL: \$21,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blanchard, B. J. GSFC/Schmugge, T. 39-Env Sci, NEC

NAS 8-26379 **Texas A&M University** **3410**
Development of techniques to control dislocations created during the fabrication of large scale integrated circuit alloys
Period *Obligations*
08/27/70-12/31/76 FY76: \$40,000 TOTAL: \$260,310
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Porter, W. A. MSFC/Nowakowski, M. F. 45-Elec Engr
MSFC/Holiday, A. M.

NAS 8-26751 **Texas A&M University** **3411**
Atmospheric variability and vertical motions
Period *Obligations*
01/15/71-12/31/75 FY76: TOTAL: \$181,372
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scoggins, J. R. MSFC/Turner, R. E. 31-Atmos Sci
MSFC/Hill, C. K.

NAS 8-29582 **Texas A&M University** **3412**
Feasibility of aircraft platforms to measure building wakes for aeronautical safety applications
Period *Obligations*
02/21/73-10/30/74 FY76: \$404 TOTAL: \$20,392
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brundidge, K. C. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Camp, D. W.

NAS 8-29764 **Texas A&M University** **3413**
Assessment of atmospheric relationships in support of space shuttle operations
Period *Obligations*
04/17/73-05/31/76 FY76: TOTAL: \$34,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scoggins, J. R. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Camp, D. W.

NAS 8-31234 **Texas A&M University** **3414**
Steady wind turbulence environments
Period *Obligations*
04/07/75-11/30/76 FY76: \$2,500 TOTAL: \$10,729
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brundidge, K. C. MSFC/Fichtl, G. H. 31-Atmos Sci
MSFC/Camp, D. W.

NAS 8-31332 **Texas A&M University** **3415**
Development of a moderately sized finite-element program for nonlinear structural analysis
Period *Obligations*
03/12/75-09/12/76 FY76: TOTAL: \$45,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Strickland, J. A. MSFC/Key, J. E. 21-Mathematics
MSFC/Bianca, C. J.

NAS 8-31773 **Texas A&M University** **3416**
The relationship between severe storms and their environment
Period *Obligations*
01/02/76-03/01/77 FY76: \$54,000 TOTAL: \$54,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scoggins, J. R. MSFC/Hill, C. K. 31-Atmos Sci
MSFC/Vaughan, W. W.

NAS 9-12434 **Texas A&M University** **3417**
Compression of rehydratable vegetables & cereals
Period *Obligations*
01/19/72-10/31/76 FY76: \$15,000 TOTAL: \$115,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Burns, E. E. JSC/Smith, M. C., Jr. 59-Life Sci, NEC

NAS 9-13894 **Texas A&M University** **3418**
Classification techniques evaluation and yield modeling for a large crop inventory project
Period *Obligations*
01/15/74-05/31/77 FY76: \$10,831 TOTAL: \$232,555
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hartley, H. O. JSC/Broune, I. D. 21-Mathematics

NAS 9-13904 **Texas A&M University** **3419**
Microwave soil moisture measurement and analysis
Period *Obligations*
02/11/74-03/31/77 FY76: \$105,900 TOTAL: \$187,730
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rouse, J. W., Jr. JSC/Buras, N. T. 39-Env Sci, NEC

NAS 9-14197 **Texas A&M University** **3420**
Remote sensing of wheat identification and yield
Period *Obligations*
06/01/74-05/31/76 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rouse, J. L. JSC/Potter, A. E. 39-Env Sci, NEC
Toler, R. W. JSC/McPherson, T. M.

NAS 9-14470 **Texas A&M University** **3421**
Analysis of spectral data for wheat
Period *Obligations*
01/01/75-03/31/77 FY76: \$93,900 TOTAL: \$162,394
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harlan, C. JSC/Barnett, T. L. 39-Env Sci, NEC

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 9-14478 **Texas A&M University** **3422**
Aeroelastic analytical studies of the space shuttle configurations
Period *Obligations*
09/30/74-01/31/77 FY76: \$100,000 TOTAL: \$165,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cavin, R. K., III JSC/Hillje, E. R. 41-Aero Engr
Howze, J. W.

NAS 9-14493 **Texas A&M University** **3423**
Definition and fabrication of an airborne scatterometer radar signal processor
Period *Obligations*
01/20/75-11/30/76 FY76: \$29,900 TOTAL: \$89,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schell, J. A. JSC/Nitschke, H. A. 49-Engr, NEC

NAS 9-14556 **Texas A&M University** **3424**
Image 100 procedure manual development
Period *Obligations*
02/01/75-08/31/75 FY76: \$960 TOTAL: \$33,400
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guseman, L. F., Jr. JSC/Nolin, F. D. 21-Mathematics

NAS 9-14689 **Texas A&M University** **3425**
Application of feature selection
Period *Obligations*
06/01/75-05/31/77 FY76: \$74,200 TOTAL: \$108,200
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guseman, L. F., Jr. JSC/Browne, I. D. 21-Mathematics

NAS 9-14817 **Texas A&M University** **3426**
Microwave signature acquisition system improvements
Period *Obligations*
10/30/75-10/31/76 FY76: \$52,014 TOTAL: \$52,014
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Newton, R. W. JSC/Hatcher, N. W. 13-Physics
Jean, B. R.

NAS 9-14821 **Texas A&M University** **3427**
Development of a processor for the multifrequency microwave radiometer system to provide radiometric data onboard the P3A
Period *Obligations*
12/01/75-06/11/76 FY76: \$12,800 TOTAL: \$12,800
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schell, J. A. JSC/Nitschke, H. A. 49-Engr, NEC

NAS 9-14828 **Texas A&M University** **3428**
Lunar sample irradiation services
Period *Obligations*
11/01/75-10/31/76 FY76: \$10,000 TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Randall, J. D. JSC/Blanchard, D. 39-Env Sci, NEC

NAS 9-14875 **Texas A&M University** **3429**
Joint soil moisture experiment scatterometer data processing
Period *Obligations*
01/22/76-10/01/76 FY76: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Schell, J. A. JSC/Buras, N. T. 32-Geological Sci

NAS 9-14898 **Texas A&M University** **3430**
Demonstrations of microwave techniques for characterization of watershed runoff
Period *Obligations*
02/18/76-02/17/77 FY76: \$23,450 TOTAL: \$23,450
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Blanchard, B. J. JSC/Mason, C. C. 39-Env Sci, NEC

NAS 9-14904 **Texas A&M University** **3431**
Image analysis library software development
Period *Obligations*
02/02/76-01/31/77 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guseman, L. F., Jr. JSC/Hay, D. H. 21-Mathematics

NCA 2-773501 **Texas A&M University** **3432**
Trace contaminant control using radiofrequency and dc electrical discharges
Period *Obligations*
01/01/75-01/31/76 FY76: TOTAL: \$9,860
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Flamm, D. ARC/Zill, L. P. 12-Chemistry

NGL 44-001-001 **Texas A&M University** **3433**
Interdisciplinary space-oriented research in physical, life and engineering sciences
Period *Obligations*
02/01/62-01/31/79 FY76: TOTAL: \$1,565,564
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rouse, J. W., Jr. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NGR 44-001-081 **Texas A&M University** **3434**
Relationships between stratospheric clear air turbulence and synoptic meteorological parameters
Period *Obligations*
02/14/69-08/31/75 FY76: TOTAL: \$106,569
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Scoggins, J. R. DFRC/Ehernberger, L. J. 31-Atmos Sci

NGR 44-001-117 **Texas A&M University** **3435**
Radiative transfer in realistic planetary atmospheres
Period *Obligations*
07/19/71-09/30/78 FY76: \$44,000 TOTAL: \$215,420
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Plass, G. N. HQ-SL/Fellows, R. F. 31-Atmos Sci
HQ-SL/Brunk, W. E.

NASA'S UNIVERSITY PROGRAM

TEXAS (Continued)

NGR 44-001-152 **Texas A&M University** **3436**
 Magnetic studies of meteorites
Period *Obligations*
 06/20/73-08/31/76 FY76: \$11,579 TOTAL: \$54,889
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rowe, M. W. HQ-SL/Williams, R. J. 32-Geological Sci

NSG 1174 **Texas A&M University** **3437**
 Development of inverse transonic airfoil design methods including boundary layer and viscous interaction effects
Period *Obligations*
 05/01/75-10/31/76 FY76: TOTAL: \$14,884
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Carlson, L. A. LARC/South, J. C., Jr. 41-Aero Engr
 LARC/Keller, J. D.

NSG 2123 **Texas A&M University** **3438**
 The drag of two-dimensional bluff cylinders in transonic cross flow
Period *Obligations*
 12/01/75-11/30/76 FY76: \$5,824 TOTAL: \$5,824
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 MacHa, J. M. ARC/Malcolm, G. N. 41-Aero Engr

NSG 7037 **Texas A&M University** **3439**
 The origin of the genetic code-A physical chemical model of Codon assignment
Period *Obligations*
 05/07/74-05/31/77 FY76: \$44,000 TOTAL: \$127,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Fendler, J. H. HQ-SB/Young, R. S. 12-Chemistry
 Nagyvary, J.

NSG 7189 **Texas A&M University** **3440**
 A comparison of smooth, continuous velocity models and stepwise, layered velocity models for the lunar crust
Period *Obligations*
 02/01/76-01/31/77 FY76: \$20,704 TOTAL: \$20,704
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Gangi, A. F. HQ-SL/Williams, R. J. 32-Geological Sci
 Self, S. L. HQ-SL/Flinn, E. A.

NAS 9-11162 **Texas Tech University** **3441**
 Insulated ECG electrodes
Period *Obligations*
 06/29/70-03/31/77 FY76: \$29,940 TOTAL: \$134,892
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Portnoy, W. M. JSC/Day, J. L. 45-Elec Engr

NAS 9-14438 **Texas Tech University** **3442**
 West Texas Emergency Medical Service Conference
Period *Obligations*
 10/29/74-09/30/76 FY76: \$3,000 TOTAL: \$23,159
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Portnoy, W. M. JSC/Day, J. L. 53-Other Medical

NSG 2137 **Texas Tech University** **3443**
 Pharmacological prevention of bone loss
Period *Obligations*
 05/01/76-04/30/77 FY76: \$8,000 TOTAL: \$8,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Kenny, A. D. ARC/Holton, E. M. 51-Biology

NAS 1-9685 **University of Houston - Houston** **3444**
 Participation in the science planning for the Viking 1975 missions in the area of molecular analysis
Period *Obligations*
 03/17/70-03/31/77 FY76: \$35,180 TOTAL: \$416,510
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Oro, J. LARC/Williams, T. S., Jr. 39-Env Sci, NEC
 LARC/Glenney, W. R.

NAS 2-9072 **University of Houston - Houston** **3445**
 Enumeration of viruses in water by laser beam spectrofluorometry
Period *Obligations*
 02/10/76-11/14/76 FY76: \$15,000 TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Allred, J. C. ARC/Ginoza, H. S. 51-Biology
 Bartel, A. H.

NAS 9-11676 **University of Houston - Houston** **3446**
 Characterization of heat transfer in nutrient materials
Period *Obligations*
 04/28/71-04/20/77 FY76: \$4,996 TOTAL: \$79,956
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Cox, J. E. JSC/Smith, M. C., Jr. 59-Life Sci, NEC

NAS 9-11845 **University of Houston - Houston** **3447**
 Data encoding study for space communication system
Period *Obligations*
 06/14/71-09/01/76 FY76: \$15,000 TOTAL: \$82,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hayre, H. S. JSC/Satterfield, J. M. 49-Engr, NEC

NAS 9-12777 **University of Houston - Houston** **3448**
 Applied mathematics in classification analysis
Period *Obligations*
 05/24/72-05/31/76 FY76: \$15,000 TOTAL: \$332,350
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Decell, H. P., Jr. JSC/Baker, K. 21-Mathematics
 JSC/Potter, A. E.

NAS 9-13262 **University of Houston - Houston** **3449**
 Development of pine seedling/tissue culture system
Period *Obligations*
 01/15/73-09/30/76 FY76: \$10,000 TOTAL: \$109,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hanson, W. B. JSC/Hoffman, R. A. 51-Biology
 Hoffman, J. H.

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NAS 9-14209 **University of Houston - Houston** **3450**
Study of astrophysical problems
Period *Obligations*
06/01/74-02/28/77 FY76: \$40,157 TOTAL: \$109,373
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sheldon, W. R. JSC/Golden, R. L. 11-Astronomy

NAS 9-14347 **University of Houston - Houston** **3451**
Analysis of space shuttle aerodynamics
Period *Obligations*
09/05/74-10/31/76 FY76: \$35,725 TOTAL: \$75,725
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Michalopoulos, C. D. JSC/Eggleston, J. M. 42-Astro Engr

NAS 9-14384 **University of Houston - Houston** **3452**
UV transmittance experimentation
Period *Obligations*
01/20/75-08/10/76 FY76: TOTAL: \$12,825
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pitts, D. G. JSC/Loper, L. R. 59-Life Sci, NEC

NAS 9-14534 **University of Houston - Houston** **3453**
Development of automated analytical capability for the early detection of diabetes mellitus
Period *Obligations*
03/01/75-09/30/76 FY76: \$25,450 TOTAL: \$85,600
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zlatkis, A. JSC/Schneider, H. J. 53-Other Medical

NAS 9-14629 **University of Houston - Houston** **3454**
Application of high resolution gas chromatography
Period *Obligations*
05/21/75-12/31/76 FY76: \$16,000 TOTAL: \$65,994
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zlatkis, A. JSC/Schneider, H. J. 52-Clinical Med

NAS 9-14652 **University of Houston - Houston** **3455**
High energy, high weight charged particles dosimetry for the Apollo-Soyuz test project
Period *Obligations*
05/01/75-09/30/76 FY76: TOTAL: \$10,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pinsky, L. S. JSC/Bailey, J. V. 13-Physics

NAS 9-14857 **University of Houston - Houston** **3456**
Effects of gravity on contractile proteins
Period *Obligations*
12/01/75-12/01/76 FY76: \$25,000 TOTAL: \$25,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Henney, H. R., Jr. JSC/Graves, R. C. 51-Biology

NAS 9-15000 **University of Houston - Houston** **3457**
Development of mathematical techniques for the analysis of remote sensing data
Period *Obligations*
05/18/76-05/31/77 FY76: \$122,000 TOTAL: \$122,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Decell, H. P., Jr. JSC/Heyborn, R. P. 21-Mathematics

NASW 2691 **University of Houston - Houston** **3458**
Revised narrative history of the Apollo-Saturn program
Period *Obligations*
06/28/74-08/27/76 FY76: TOTAL: \$50,459
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable HQ-AD/Wright, M. D. 73-History

NCA 2-295502 **University of Houston - Houston** **3459**
Applications of cartan's theory of differential forms to problems in turbulence
Period *Obligations*
01/01/75-12/31/75 FY76: TOTAL: \$10,662
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiehn, R. M. ARC/Zill, L. P. 41-Aero Engr

NCA 2-295503 **University of Houston - Houston** **3460**
Investigation of biological lipid peroxidation
Period *Obligations*
12/01/74-11/30/75 FY76: TOTAL: \$15,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bartel, A. H. ARC/Zill, L. P. 51-Biology

NCA 2-295601 **University of Houston - Houston** **3461**
Effects of hydrogen and radiating wavelengths on photo-chemical production of molecules under simulated Jovian conditions
Period *Obligations*
09/01/75-08/31/76 FY76: \$11,000 TOTAL: \$11,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Becker, R. S. ARC/Zill, L. P. 51-Biology

NCA 2-295602 **University of Houston - Houston** **3462**
Applications of topological features of hydrodynamics
Period *Obligations*
01/01/76-12/31/76 FY76: \$12,272 TOTAL: \$12,272
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kiehn, R. M. ARC/Zill, L. P. 13-Physics

NGL 44-005-041 **University of Houston - Houston** **3463**
Study of solar flare particle events and related solar physics
Period *Obligations*
05/20/66-09/30/76 FY76: TOTAL: \$568,346
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goodman, C. JSC/Bailey, J. V. 13-Physics

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NGL 44-005-090 **University of Houston - Houston** **3464**
General research program

| Period | Obligations | |
|-------------------|-----------------------|---------------|
| 06/04/69-09/30/76 | FY76: TOTAL: \$88,023 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Huang, C. J. | JSC/Eandi, B. K. | 49-Engr, NEC |

NGR 44-005-002 **University of Houston - Houston** **3465**
Studies in organic cosmochemistry, including consideration of compound formation under primitive earth conditions & of organic material in selected meteorites

| Period | Obligations | |
|--------------------|---------------------------------|-------------------|
| 06/18/62-11/30/76 | FY76: \$60,000 TOTAL: \$724,905 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Oro, J. | HQ-SB/Young, R. S. | 32-Geological Sci |
| Middleditch, B. S. | | |

NGR 44-005-091 **University of Houston - Houston** **3466**
Spectroscopic and photochemical study of photochromic compounds

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 03/07/69-01/31/77 | FY76: \$75,000 TOTAL: \$405,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Becker, R. S. | HQ-SB/Young, R. S. | 12-Chemistry |

NGR 44-005-131 **University of Houston - Houston** **3467**
Geologic interpretation of Mars surface photography from Mariners 6 and 7

| Period | Obligations | |
|-------------------|-----------------------|-------------------|
| 10/26/70-12/31/75 | FY76: TOTAL: \$91,557 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| King, E. A., Jr. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

NGR 44-005-133 **University of Houston - Houston** **3468**
Investigation of auroral disturbances

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 03/15/71-08/30/76 | FY76: TOTAL: \$319,036 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sheldon, W. R. | HQ-ST/Cauffman, D. P. | 31-Atmos Sci |

NGR 44-005-137 **University of Houston - Houston** **3469**
Thermomagnetic torques in gases

| Period | Obligations | |
|--------------------|------------------------|---------------|
| 02/17/71-08/31/77 | FY76: TOTAL: \$129,200 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hildebrandt, A. F. | JSC/Kondo, Y. | 13-Physics |

NSG 1277 **University of Houston - Houston** **3470**
Acoustics measurements in normal jet impingement

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 02/15/76-02/14/77 | FY76: \$10,000 TOTAL: \$10,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kleis, S. J. | LARC/Hardin, J. C. | 13-Physics |

NSG 1290 **University of Houston - Houston** **3471**
Acoustics-turbulence interaction in a circular jet

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 02/15/76-11/14/76 | FY76: \$33,000 TOTAL: \$33,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hussain, A. K. | LARC/Hefner, J. N. | 41-Aero Engr |

NSG 6008 **University of Houston - Houston** **3472**
Investigation of ionospheric disturbances using a parachute deployed payload

| Period | Obligations | |
|-------------------|--------------------------------|------------------|
| 12/01/75-11/30/76 | FY76: \$50,000 TOTAL: \$50,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Sheldon, W. R. | WFC/Ballance, C. W., Jr. | 19-Phys Sci, NEC |
| | WFC/Gray, J. W. | |

NSG 7198 **University of Houston - Houston** **3473**
Closure and ratio correlation analysis of lunar chemical and grain size data

| Period | Obligations | |
|-------------------|------------------------------|-------------------|
| 04/01/76-03/31/77 | FY76: \$6,980 TOTAL: \$6,980 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Butler, J. C. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

NSG 9042 **University of Houston - Houston** **3474**
Aromatic biosynthesis in pine tissues

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 04/01/76-03/31/77 | FY76: \$29,800 TOTAL: \$29,800 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Coules, J. R. | JSC/Hoffman, R. A. | 51-Biology |

NAS 9-14874 **University of Houston - Clear Lake** **3475**
Analysis of remote sensing data: Screw worm eradication program

| Period | Obligations | |
|-------------------|--------------------------------|------------------|
| 12/10/75-01/01/77 | FY76: \$22,000 TOTAL: \$22,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Schuhmann, R. E. | JSC/Barnes, C. M. | 59-Life Sci, NEC |

NSG 9043 **University of Houston - Clear Lake** **3476**
Cosmic ray and solar flare irradiation history of regolith crystals and agglutinates

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 06/01/76-01/31/77 | FY76: \$24,600 TOTAL: \$24,600 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Blanford, G. E. | JSC/Harris, J. W. | 13-Physics |

NSG 2077 **University of Texas - Arlington** **3477**
Large eddy structure of a turbulent boundary layer

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 03/15/75-03/14/77 | FY76: \$11,979 TOTAL: \$22,141 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Payne, F. R. | ARC/Rubens, M. W. | 41-Aero Engr |
| | ARC/Marvin, J. G. | |

NASA'S UNIVERSITY PROGRAM TEXAS (Continued)

| | | |
|--|-------------------------------------|------------------------|
| NAS 1-14160 | University of Texas - Austin | 3478 |
| Study of nonlinear propagation effects in jet noise | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/15/75-12/29/76 | FY76: \$40,000 | TOTAL: \$40,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Blackstock, D. T. | LARC/Hilton, D. A. | 41-Aero Engr |
| | LARC/Seiner, J. M. | |

| | | | |
|---|---------------------------|-------------------------------------|-------------|
| NAS 5-20946 | | University of Texas - Austin | 3479 |
| Study of relative satellite motion determination and prediction | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 02/12/75-07/01/76 | FY76: | TOTAL: \$38,458 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Tapley, B. D. | GSFC/Fuchs, A. J. | 49-Engr, NEC | |
| Fowler, W. T. | GSFC/Velez, C. E. | | |
| Schutz, B. E. | | | |

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|---|-------------------------------------|------------------------|
| NAS 5-21982 | University of Texas - Austin | 3480 |
| ATS-F millimeter wave experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/13/74-11/13/75 | FY76: | TOTAL: \$95,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Straiton, A. W. | GSFC/Hirschmann, E. | 45-Elec Engr |
| Fannin, B. M. | | |

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| NAS 5-22576 | University of Texas - Austin | 3481 |
| Communications link characterization experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/08/75-12/08/76 | FY76: \$74,000 | TOTAL: \$74,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Straiton, A. W. | GSFC/Hirschmann, E. | 45-Elec Engr |

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|--|-------------------------------------|----------------------|
| NAS 6-2454 | University of Texas - Austin | 3482 |
| GEOS-C research into solid earth dynamics | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/15/74-03/14/77 | FY76: \$29,652 | TOTAL: \$90,552 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Tapley, B. D. | WFC/St Stanley, H. R. | 32-Geological Sci |
| Schutz, B. E. | WFC/Rossi, L. C. | |

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|--|---------------------------|-------------------------------------|-------------|
| NAS 8-31459 | | University of Texas - Austin | 3483 |
| Analysis of ultraviolet stellar spectra obtained with Skylab experiment S-019 | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 06/30/75-06/30/77 | FY76: \$155,000 | TOTAL: \$221,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Henize, K. | MSFC/Williams, J. R. | 11-Astronomy | |
| Wray, J. D. | MSFC/Duncan, B. J. | | |

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|--------------------------------|-------------------------------------|------------------------|
| NAS 8-31566 | University of Texas - Austin | 3484 |
| TEXGAP computer program | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/27/75-12/27/76 | FY76: | TOTAL: \$11,978 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dunham, R. B. | MSFC/Key, J. E. | 21-Mathematics |
| Beckek, E. B. | MSFC/Bianca, C. J. | |

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|--|------------------------------|----------------------|
| NAS 9-12568 | University of Texas - Austin | 3485 |
| Operation, maintenance & analysis of a data storage unit | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/24/72-07/31/76 | FY76: \$20,000 | TOTAL: \$107,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Barnes, T. G., III | ISC/Potter, A. E. | 11-Astronomy |

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|---|-------------------------------------|------------------------|
| NAS 9-13680 | University of Texas - Austin | 3486 |
| Assessment of real gas effects on the extrapolation of shuttle flow field phenomena to flight conditions | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/27/73-12/15/76 | FY76: | TOTAL: \$77,476 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Bertin, J. J. | JSC/Goodrich, W. D. | 41-Aero Engr |

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|--|-------------------------------------|-------------------------|
| NAS 9-14405 | University of Texas - Austin | 3487 |
| Lunar seismic profiling experiment natural activity study | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/01/75-04/30/76 | FY76: | TOTAL: \$43,850. |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Duennebier, F. D. | JSC/Eichelman, W. F. | 32-Geological Sci |

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|---|-------------------------------------|----------------------|
| NAS 9-14491 | University of Texas - Austin | 3488 |
| Adsorption pumping, cryogenic refrigeration study | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/10/75-02/17/77 | FY76: \$68,959 | TOTAL: \$118,200 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hartwig, W. H. | JSC/Richard, R. R. | 49-Engr, NEC |
| Steinfink, H. | JSC/Nuss, R. W. | |
| Tchernev, D. I. | | |

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|---|-------------------------------------|----------------------|
| NAS 9-14810 | University of Texas - Austin | 3489 |
| Apollo lunar surface experiment package, data processing | | |
| <i>Period</i> | <i>Obligations</i> | |
| 10/01/75-01/31/77 | FY76: \$365,775 | TOTAL: \$365,775 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Latham, G. V. | JSC/Eichelman, W. F. | 13-Physics |

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|--|---------------------------|------------------------------|------|
| NAS 9-14892 | | University of Texas - Austin | 3490 |
| Definition of a general mathematical model | | | |
| <i>Period</i> | <i>Obligations</i> | | |
| 01/29/76-09/30/76 | FY76: \$15,000 | TOTAL: \$15,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | |
| Beckner, F. | JSC/Fenner, R. G. | 45-Elec Engr | |

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|--|-------------------------------------|---------------------------|
| NGL 44-012-006 | University of Texas - Austin | 3491 |
| Research on millimeter wavelength radiation from solar bodies | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/29/63-03/31/79 | FY76: \$126,190 | TOTAL: \$1,401,342 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cogdell, J. R. | HQ-SL/Brunk, W. E. | 11-Astronomy |
| | HO-SL/Fellows. R. F. | |

**NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)**

**REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR**

NGL 44-012-045 **University of Texas - Austin** **3492**
A study of ignimbrites in the Cordilleran region as a basis for interpretation of lunar plains
Period *Obligations*
05/31/66-05/01/75 FY76: TOTAL: \$147,886
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clabaugh, S. E. HQ-SM/Bryson, R. P. 32-Geological Sci
HQ-SM/Allenby, R. J.

NGL 44-012-055 **University of Texas - Austin** **3493**
Polarization and time structure of Jovian decametric radiation and the structure of interplanetary plasma
Period *Obligations*
05/25/66-04/30/79 FY76: \$59,133 TOTAL: \$869,188
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Douglas, J. N. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGL 44-012-133 **University of Texas - Austin** **3494**
General research program
Period *Obligations*
09/17/69-09/15/76 FY76: TOTAL: \$66,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McKetta, J. J. JSC/Eandi, B. K. 49-Engr, NEC

NGR 44-012-152 **University of Texas - Austin** **3495**
A program of planetary studies
Period *Obligations*
06/25/69-08/31/76 FY76: \$410,000 TOTAL: \$2,405,188
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mulholland, J. D. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGR 44-012-165 **University of Texas - Austin** **3496**
Continuation of lunar laser ranging experiments at McDonald Observatory
Period *Obligations*
10/11/69-08/31/76 FY76: \$356,515 TOTAL: \$2,188,761
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, H. J. HQ-SL/Strickland, A. T. 32-Geological Sci
HQ-SM/Shirey, W. H.

NGR 44-012-194 **University of Texas - Austin** **3497**
Morphologic and tectonic studies of Mars from Mariner 6 and 7 photographs
Period *Obligations*
10/01/70-09/30/75 FY76: TOTAL: \$40,462
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ingerson, F. E. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Holt, H. E.

NGR 44-012-209 **University of Texas - Austin** **3498**
Study of optical properties of X-ray source
Period *Obligations*
05/26/71-08/31/77 FY76: \$10,944 TOTAL: \$58,838
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Vanden Bout, P. A. HQ-SA/Rosendhal, J. D. 11-Astronomy

NGR 44-012-219 **University of Texas - Austin** **3499**
Lunar motion analysis (lunar laser ranging experiment)
Period *Obligations*
08/11/71-08/31/75 FY76: \$4,168 TOTAL: \$333,711
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Mulholland, J. D. HQ-SL/Strickland, A. T. 11-Astronomy

NGR 44-012-225 **University of Texas - Austin** **3500**
Stable carbon isotope ratio variations in blue-green algae as a function of growth conditions
Period *Obligations*
06/20/72-01/31/77 FY76: \$18,000 TOTAL: \$55,916
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parker, P. L. HQ-SL/Young, R. S. 32-Geological Sci
Van Baalen, C.

NGR 44-012-240 **University of Texas - Austin** **3501**
Josephson junction detector system for studies of the spectra of Jupiter and Venus
Period *Obligations*
02/15/73-09/01/76 FY76: TOTAL: \$9,991
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ulrich, B. T. ARC/Mason, R. H. 11-Astronomy

NGR 44-012-258 **University of Texas - Austin** **3502**
Stark broadening of heavy neutral atoms and ions
Period *Obligations*
00/00/00-12/31/76 FY76: \$5,000 TOTAL: \$27,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bengtson, P. D. HQ-ST/Timothy, A. F. 11-Astronomy

NGR 44-012-260 **University of Texas - Austin** **3503**
High resolution spectrograph for the large space telescope
Period *Obligations*
10/01/73-02/29/76 FY76: \$2,762 TOTAL: \$15,813
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tull, R. G. GSFC/Sobieski, S. 11-Astronomy
GSFC/Meese, K. J.

NGR 44-012-261 **University of Texas - Austin** **3504**
Low resolution spectrograph for the large space telescope
Period *Obligations*
10/01/73-11/30/75 FY76: TOTAL: \$6,996
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Nather, R. E. GSFC/Sobieski, S. 11-Astronomy
GSFC/Meese, K. J.

NGR 44-012-269 **University of Texas - Austin** **3505**
Development of efficient methods for satellite determination and prediction
Period *Obligations*
09/17/73-09/16/75 FY76: TOTAL: \$81,370
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. D. GSFC/Fuchs, A. J. 49-Engr, NEC
Nacozy, P. E. GSFC/Velez, C. E.

NGR 44-012-269 **University of Texas - Austin** **3505**
Development of efficient methods for satellite determination and prediction
Period *Obligations*
09/17/73-09/16/75 FY76: TOTAL: \$81,370
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. D. GSFC/Fuchs, A. J. 49-Engr, NEC
Nacozy, P. E. GSFC/Velez, C. E.

NASA'S UNIVERSITY PROGRAM

TEXAS (Continued)

NGR 44-012-279 **University of Texas - Austin** **3506**
Atlas of Mariner 9 albedo charts of Mars
Period *Obligations*
07/01/73-06/30/75 **FY76:** **TOTAL: \$45,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Devaucouleurs, G. H. HQ-SL/Dwornik, S. E. 32-Geological Sci
HQ-SL/Allingham, J. W.

NGR 44-012-282 **University of Texas - Austin** **3507**
Outer planet satellite studies
Period *Obligations*
09/01/73-08/31/76 **FY76: \$49,960** **TOTAL: \$127,823**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trafton, L. M. HQ-SL/Brunk, W. E. 11-Astronomy
HQ-SL/Fellows, R. F.

NGR 44-012-283 **University of Texas - Austin** **3508**
Precision orbit determination for near-earth satellites
Period *Obligations*
01/14/74-04/30/77 **FY76: \$30,000** **TOTAL: \$84,410**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tapley, B. D. GSFC/Kolenkiewicz, R. 32-Geological Sci
Schutz, B. E. GSFC/Smith, D. E.

NSG 1268 **University of Texas - Austin** **3509**
Free-interface methods for substructure coupling
Period *Obligations*
01/01/76-03/31/77 **FY76: \$23,840** **TOTAL: \$23,840**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Craig, R. R. LERC/Fralich, R. W. 49-Engr, NEC
LERC/Pinson, L. D.

NSG 2065 **University of Texas - Austin** **3510**
Antecedents of achievement and creativity
Period *Obligations*
02/01/75-01/31/77 **FY76: \$30,000** **TOTAL: \$69,500**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Helmreich, R. L. ARC/Tanner, T. A. 69-Psych, NEC

NSG 2101 **University of Texas - Austin** **3511**
Exact solutions of potential flows related to flight vehicles
Period *Obligations*
09/15/75-09/14/76 **FY76: \$28,115** **TOTAL: \$28,115**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Summa, J. M. ARC/Medan, R. T. 41-Aero Engr

NSG 3089 **University of Texas - Austin** **3512**
Plasma fluctuation diagnostic tool for the bumpy Torus experiment
Period *Obligations*
11/17/75-11/16/76 **FY76: \$30,000** **TOTAL: \$30,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Powers, E. J. LERC/Roth, J. R. 45-Elec Engr

NSG 5005 **University of Texas - Austin** **3513**
Observations of emission lines in m supergiants
Period *Obligations*
05/01/74-12/31/76 **FY76:** **TOTAL: \$20,778**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lambert, D. L. GSFC/Kupperian, J. E. 11-Astronomy

NSG 5031 **University of Texas - Austin** **3514**
Investigation of chlorine abundances in early-type stars
Period *Obligations*
11/01/74-10/31/75 **FY76:** **TOTAL: \$1,435**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Parsons, S. B. GSFC/Kupperian, J. E. 11-Astronomy

NSG 5115 **University of Texas - Austin** **3515**
Study of Jupiter's ultraviolet ammonia absorption
Period *Obligations*
07/01/76-06/30/77 **FY76: \$2,350** **TOTAL: \$2,350**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, H. J. GSFC/Kupperian, J. E. 11-Astronomy

NSG 7159 **University of Texas - Austin** **3516**
Preliminary geophysical and geological site survey of the region of the McDonald Observatory
Period *Obligations*
09/08/75-03/08/76 **FY76: \$22,640** **TOTAL: \$22,640**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Latham, G. V. HQ-SL/Strickland, A. T. 19-Phys Sci, NEC
Dorman, J.

NSG 7162 **University of Texas - Austin** **3517**
Lunar laser data identification and management
Period *Obligations*
09/01/75-08/31/76 **FY76: \$60,892** **TOTAL: \$60,892**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Shelus, P. J. HQ-SL/Shirey, W. H. 19-Phys Sci, NEC

NSG 7232 **University of Texas - Austin** **3518**
Astrophysics of supermassive accretion disks
Period *Obligations*
05/01/76-04/30/77 **FY76: \$16,606** **TOTAL: \$16,606**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Wheeler, J. C. HQ-SA/Roman, N. G. 11-Astronomy
HQ-SA/Rosendhal, J. D.

NSG 7250 **University of Texas - Austin** **3519**
Late cenozoic tectonic history in the region of the McDonald Observatory, Trans-Pecos, Texas
Period *Obligations*
07/01/76-06/30/77 **FY76: \$18,962** **TOTAL: \$18,962**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Muehlberger, W. R. HQ-SL/Smith, M. J. 32-Geological Sci
HQ-SL/Flinn, E. A.

NASA'S UNIVERSITY PROGRAM

TEXAS (Continued)

NSG 9021 **University of Texas - Austin** **3520**
 Origin of magnetization in lunar breccias and its bearing on their formation

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/75-01/31/77 | FY76: \$27,800 | TOTAL: \$51,425 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gose, W. A. | JSC/Harris, J. W. | 32-Geological Sci |

NAS 1-9699 **University of Texas - Dallas** **3521**
 Participation in the science planning for the Viking 1975 missions in the area of entry science

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/08/70-03/31/77 | FY76: \$37,318 | TOTAL: \$197,318 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hanson, W. B. | LARC/Williams, T. S., Jr. | 99-Multi-Discip |
| | LARC/Glenney, W. R. | |

NAS 2-8802 **University of Texas - Dallas** **3522**
 Pioneer/Venus neutral mass spectrometer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/12/75-08/31/78 | FY76: \$1,310,000 | TOTAL: \$1,550,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffman, J. H. | ARC/Hall, C. F. | 31-Atmos Sci |
| York, D. R. | ARC/Polaski, L. R. | |

NAS 5-11406 **University of Texas - Dallas** **3523**
 Atmosphere Explorer magnetic ion mass spectrometer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/06/71-09/30/77 | FY76: \$188,000 | TOTAL: \$1,052,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffman, J. H. | GSFC/Corrigan, J. P. | 31-Atmos Sci |

NAS 5-11407 **University of Texas - Dallas** **3524**
 Planar ion trap experiment

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/06/71-11/19/77 | FY76: \$204,000 | TOTAL: \$1,166,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hanson, W. B. | GSFC/Corrigan, J. P. | 31-Atmos Sci |
| Sanatani, S. | | |

NAS 8-31775 **University of Texas - Dallas** **3525**
 Study of ATS 6 and OGO 5 data analysis

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/18/76-09/18/76 | FY76: \$5,920 | TOTAL: \$5,920 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hanson, W. B. | MSFC/Chappell, C. R. | 19-Phys Sci, NEC |
| Hoffman, J. H. | MSFC/Jlburch, J. L. | |

NAS 9-12074 **University of Texas - Dallas** **3526**
 Scientific support of the lunar atmospheric mass spectrometer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/26/71-09/30/75 | FY76: | TOTAL: \$468,848 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hoffman, J. H. | JSC/Eichelman, W. F. | 19-Phys Sci, NEC |

NAS 9-13512 **University of Texas - Dallas** **3527**
 Development of a mathematical technique for analysis of remote sensing data

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/31/73-08/31/76 | FY76: \$20,000 | TOTAL: \$174,995 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Odell, P. L. | JSC/Baker, K. | 21-Mathematics |
| | JSC/Potter, A. E. | |

NGL 44-004-001 **University of Texas - Dallas** **3528**
 Research in earth and planetary sciences, including development of advanced scientific experiments in lunar, planetary and space exploration

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/28/62-03/01/75 | FY76: | TOTAL: \$6,441,277 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, F. S. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| Hanson, W. B. | HQ-SL/Hipsheer, H. F. | |

NGL 44-004-026 **University of Texas - Dallas** **3529**
 Investigations into the mechanism and rates of atmospheric mixing in the lower thermosphere

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/05/65-03/31/79 | FY76: \$200,000 | TOTAL: \$1,973,751 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, F. S. | HQ-SL/Fellows, R. F. | 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. | |

NGL 44-004-130 **University of Texas - Dallas** **3530**
 Selected studies in the space sciences

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/17/72-03/31/79 | FY76: \$200,000 | TOTAL: \$1,000,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, F. S. | HQ-P/Carter, C. H. | 99-Multi-Discip |

NGR 44-004-030 **University of Texas - Dallas** **3531**
 Study of electron collision frequency under ionospheric conditions

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/05/65-12/31/76 | FY76: \$15,000 | TOTAL: \$580,765 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Heikkila, W. J. | HQ-ST/Cauffman, D. P. | 13-Physics |
| | HQ-ST/Schmerling, E. R. | |

NGR 44-004-120 **University of Texas - Dallas** **3532**
 Rocket probes for the upper F-region

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/09/71-01/31/77 | FY76: \$90,000 | TOTAL: \$805,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hanson, W. B. | HQ-ST/Taylor, W. W. | 31-Atmos Sci |
| | HQ-ST/Schmerling, E. R. | |

NASA'S UNIVERSITY PROGRAM
TEXAS (Continued)

NGR 44-004-124 **University of Texas - Dallas** **3533**
Rocket investigation of auroral zone disturbances
Period *Obligations*
08/10/71-10/31/76 FY76: \$141,466 TOTAL: \$661,466
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. GSFC/Bissell, E. E., Jr. 13-Physics
Winningham, J. D.
Umper, K. L.

NGR 44-004-133 **University of Texas - Dallas** **3534**
Comparison of solar cosmic ray anisotropics and interplanetary magnetic field data
Period *Obligations*
04/23/73-08/31/75 FY76: TOTAL: \$66,852
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Allum, F. R. HQ-SA/Opp, A. G. 11-Astronomy

NGR 44-004-142 **University of Texas - Dallas** **3535**
Comparison of OGO-4 ultraviolet and visible nightglow data with computer models
Period *Obligations*
07/01/73-02/29/76 FY76: TOTAL: \$38,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tinsley, B. A. HQ-ST/Schmerling, E. R. 19-Phys Sci, NEC

NGR 44-004-150 **University of Texas - Dallas** **3536**
Data analysis for ISIS soft-particle spectrometer
Period *Obligations*
03/15/73-09/30/75 FY76: TOTAL: \$135,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. HQ-ST/Schmerling, E. R. 31-Atmos Sci

NSG 5085 **University of Texas - Dallas** **3537**
Particle spectrometer on board ISIS-2
Period *Obligations*
11/01/75-10/31/76 FY76: \$50,000 TOTAL: \$50,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. GSFC/Brace, L. H. 31-Atmos Sci
Winningham, J. D.
Umpar, K. L.

NSG 5087 **University of Texas - Dallas** **3538**
Ion composition research on ISIS-2
Period *Obligations*
12/01/75-11/30/76 FY76: \$30,000 TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. GSFC/Brace, L. H. 31-Atmos Sci

NSG 7034 **University of Texas - Dallas** **3539**
Investigation of the daytime lunar atmosphere for lunar synthesis program
Period *Obligations*
04/01/74-03/31/77 FY76: \$50,000 TOTAL: \$133,011
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hodges, R. R., Jr. HQ-SL/Williams, R. J. 31-Atmos Sci
HQ-SL/Flinn, E. A.

NSG 7107 **University of Texas - Dallas** **3540**
ISIS-2 ion mass spectrometer data analysis and interpretation study
Period *Obligations*
12/01/74-11/30/75 FY76: TOTAL: \$30,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. HQ-ST/Schmerling, E. R. 31-Atmos Sci

NSR 44-004-041 **University of Texas - Dallas** **3541**
Development of payloads for systemic study of auroral zone disturbances
Period *Obligations*
06/03/66-11/11/74 FY76: TOTAL: \$1,310,852
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heikkila, W. J. HQ-ST/Schmerling, E. R. 13-Physics

NSR 44-004-089 **University of Texas - Dallas** **3542**
Analysis of data from the ion mass spectrometer on the Explorer XXXI satellite
Period *Obligations*
10/02/68-11/08/74 FY76: TOTAL: \$112,036
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hoffman, J. H. HQ-SA/Berko, F. W. 13-Physics
HQ-SA/Schmerling, E. R.

NGT 44-085-750 **University of Texas - El Paso** **3543**
Training of undergraduate students in sciences and engineering
Period *Obligations*
06/01/75-05/31/77 FY76: \$7,000 TOTAL: \$14,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Guard, R. W. HQ-P/Pohly, J. G. 49-Engr, NEC

NAS 9-13102 **Univ of Texas Medical Branch - Galveston** **3544**
Blood studies
Period *Obligations*
06/30/72-06/30/76 FY76: TOTAL: \$80,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lockhart, L. H. JSC/Kimzey, S. L. 53-Other Medical

NAS 9-14641 **Univ of Texas Medical Branch - Galveston** **3545**
Analysis of spontaneous vestibular primary afferent discharge following application of drugs
Period *Obligations*
05/01/75-04/30/77 FY76: \$30,000 TOTAL: \$44,973
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Correia, M. J. JSC/Reschke, M. F. 69-Psych, NEC

NGR 44-088-002 **Univ of Texas Medical Branch - Galveston** **3546**
Mechanisms of cerebral blood flow changes during acceleration stress
Period *Obligations*
10/13/71-10/31/76 FY76: \$34,906 TOTAL: \$151,792
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Stone, H. L. ARC/Sandler, H. 52-Clinical Med

NASA'S UNIVERSITY PROGRAM

TEXAS (Continued)

NSG 9026 **University of Texas Health Center - Dallas** **3547**
Cardiovascular effect of variations in habitual levels of physical activity

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/75-02/28/77 | FY76: \$60,700 | TOTAL: \$121,600 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Blomquist, C. G. | JSC/Hoffler, G. W. | 52-Clinical Med |
| Mitchell, J. H. | | |

NGR 44-094-003 **Univ of Texas Health Center - San Antonio** **3548**
Role of systemic & renal hemodynamics

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/01/73-12/31/76 | FY76: | TOTAL: \$130,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Earley, L. E. | JSC/Hoffler, G. W. | 53-Other Medical |

NGL 44-084-003 **Univ of Texas-Health Science Center** **3549**
Remote sensing utility in a disaster-struck area

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/73-11/30/76 | FY76: | TOTAL: \$100,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rush, M. | HQ-P/Vitale, J. A. | 59-Life Sci, NEC |
| | JSC/Kennedy, E. E. | |

NGR 44-015-003 **West Texas State University** **3550**
Geology of mare Acidaliu quadrangle MO-4 on Mars

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/25/73-03/31/76 | FY76: \$8,420 | TOTAL: \$28,920 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Underwood, J. R. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

UTAH

NAS 2-7358 **Brigham Young University** **3551**
Analysis of Pioneer F & G solar terrestrial relationship data

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 00/00/00-09/30/77 | FY76: \$12,000 | TOTAL: \$46,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jones, D. E. | ARC/Hall, C. F. | 13-Physics |
| | ARC/Porter, D. L. | |

NAS 9-14499 **Brigham Young University** **3552**
Study scanning electron microscopy glass particles produced by lava fountain eruptions

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/01/75-06/30/77 | FY76: \$10,900 | TOTAL: \$33,650 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Laole, G. H. | JSC/Phinney, W. C. | 32-Geological Sci |

NGR 45-001-011 **Brigham Young University** **3553**
Analysis and interpretation of magnetic field measurements between Earth and Mars received from Mariner IV

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/10/65-09/30/76 | FY76: | TOTAL: \$206,571 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jones, D. E. | HQ-ST/Cauffman, D. P. | 39-Env Sci, NEC |

NGR 45-001-032 **Brigham Young University** **3554**
Microwave studies of planetary atmospheres

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/05/70-08/31/75 | FY76: | TOTAL: \$16,100 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jones, D. E. | HQ-SL/Brunk, W. E. | 11-Astronomy |

NGR 45-001-040 **Brigham Young University** **3555**
Studies of lunar magnetism & interplanetary plasma discontinuities

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/21/73-11/20/76 | FY76: | TOTAL: \$48,904 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jones, D. E. | ARC/Dyal, P. | 13-Physics |
| Daily, W. D. | ARC/Witteborn, F. C. | |

NSG 3068 **Brigham Young University** **3556**
Microwave diagnostic instrumentation for steady state plasma

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/01/75-12/31/76 | FY76: \$2,000 | TOTAL: \$13,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Gardner, A. L. | LERC/Roth, J. R. | 13-Physics |
| | LERC/Seikel, G. R. | |

NAS 1-12705 **University of Utah** **3557**
Science planning for the Viking 1975 missions in the area of physical properties

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/14/74-03/31/77 | FY76: \$12,365 | TOTAL: \$101,704 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Shorthill, R. W. | LARC/Williams, T. S., Jr. | 19-Phys Sci, NEC |
| | LARC/Glenny, W. R. | |

NAS 5-20955 **University of Utah** **3558**
ERTS data follow-on investigation

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/13/75-10/13/76 | FY76: \$35,000 | TOTAL: \$100,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nackowski, M. | GSFC/Broderick, J. C. | 32-Geological Sci |

NAS 6-2498 **University of Utah** **3559**
Upper atmospheric physical and dynamic processes

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/26/74-04/25/76 | FY76: \$3,409 | TOTAL: \$51,009 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Kao, S. K. | WFC/Duke, J. R. | 31-Atmos Sci |

NASA'S UNIVERSITY PROGRAM

UTAH (Continued)

NAS 6-2627 **University of Utah** **3560**
 Rocketsonde data processing and participation in the meteorological rocket/Nimbus satellite data comparison project
Period *Obligations*
 03/21/75-08/22/76 **FY76: \$45,000** **TOTAL: \$85,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Staffanson, F. L. WFC/Duke, J. R. 31-Atmos Sci
 WFC/Schmidlin, F. J.

NAS 8-30253 **University of Utah** **3561**
 Preparation and investigation of methacrylate hydrogels for zeta potential control
Period *Obligations*
 11/15/73-12/14/76 **FY76:** **TOTAL: \$101,020**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Andrade, J. D. MSFC/Patterson, W. J. 12-Chemistry
 MSFC/Allen, R. E.

NAS 9-14809 **University of Utah** **3562**
 Toxicity of combustion products of polymeric aircraft materials
Period *Obligations*
 10/10/75-06/01/76 **FY76: \$45,997** **TOTAL: \$45,997**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Baldwin, R. C. JSC/Kaplan, H. L. 59-Life Sci, NEC

NASW 2648 **University of Utah** **3563**
 Studying the earth from space
Period *Obligations*
 05/21/74-12/05/75 **FY76:** **TOTAL: \$15,054**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ridd, M. K. HQ-FE/Tuttle, F. B. 39-Env Sci, NEC
 McCoy, R. M. HQ-FE/Ahrendt, M. H.

NCA 2-821601 **University of Utah** **3564**
 Bio-telemetry systems in calves with artificial hearts
Period *Obligations*
 07/01/75-06/30/76 **FY76:** **TOTAL: \$1,035**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Smith, L. M. ARC/Zill, L. P. 51-Biology
 Olsen, D. B.

NGL 45-003-025 **University of Utah** **3565**
 Investigation of meteorological measurement techniques up to 100 kilometers
Period *Obligations*
 12/15/65-11/30/76 **FY76:** **TOTAL: \$649,727**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Weil, H. LARC/Hardesty, C. A. 31-Atmos Sci
 Senior, T. B.

NGL 45-003-037 **University of Utah** **3566**
 Paramagnetic resonance effect in viscoelastic materials
Period *Obligations*
 01/20/67-06/08/74 **FY76:** **TOTAL: \$156,194**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Devires, K. L. HQ-RP/Wasel, R. A. 46-Mech Engr

NGR 45-003-095 **University of Utah** **3567**
 Analysis of the geologic cycle of Mars
Period *Obligations*
 06/29/72-08/31/76 **FY76:** **TOTAL: \$40,412**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wilson, R. C. HQ-SL/Dwornik, S. E. 32-Geological Sci
 Picard, M. D.

NGR 45-003-108 **University of Utah** **3568**
 Applications of computer speech recognition in flight management
Period *Obligations*
 11/01/73-09/30/76 **FY76: \$16,980** **TOTAL: \$45,809**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Plummer, R. P. ARC/Coler, C. R. 45-Elec Engr

NSG 1272 **University of Utah** **3569**
 An investigation of the relationship between annoyance and the duration of aircraft flyovers
Period *Obligations*
 02/01/76-01/31/77 **FY76: \$37,127** **TOTAL: \$37,127**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shepherd, K. P. LARC/Lawton, B. W. 39-Env Sci, NEC

NSG 7090 **University of Utah** **3570**
 Lunar data synthesis
Period *Obligations*
 07/01/74-06/30/76 **FY76:** **TOTAL: \$102,400**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ward, S. H. HQ-SM/Bryson, R. P. 32-Geological Sci
 HQ-SM/Roberson, F. I.

NSG 7226 **University of Utah** **3571**
 Identifying environmental features for land management decisions
Period *Obligations*
 08/01/76-07/31/79 **FY76: \$250,000** **TOTAL: \$250,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Ridd, M. K. HQ-P/Vitale, J. A. 39-Env Sci, NEC

NSG 9024 **University of Utah** **3572**
 Origin, evolution, and crystallization of lunar magmas
Period *Obligations*
 02/01/75-07/31/76 **FY76:** **TOTAL: \$30,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nash, W. P. JSC/Harris, J. W. 32-Geological Sci

NAS 2-8108 **Utah State University** **3573**
 Gas for stratospheric sampling program
Period *Obligations*
 02/01/74-01/31/76 **FY76: \$11,906** **TOTAL: \$29,164**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Shaw, A. W. ARC/Lowenstein, M. 31-Atmos Sci
 ARC/Savage, H. F.

NASA'S UNIVERSITY PROGRAM

UTAH (Continued)

NAS 9-14871 **Utah State University** **3574**
Higher plant response to elevated ultraviolet irradiance
Period *Obligations*
10/08/75-10/08/76 **FY76: \$60,000** **TOTAL: \$60,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Caldwell, M. M. JSC/Nachtwey, D. S. 51-Biology

NCA 2-820501 **Utah State University** **3575**
Application of linear quadratic techniques to problems of reliability
Period *Obligations*
09/09/74-09/01/75 **FY76:** **TOTAL: \$14,075**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Martin, C. F. ARC/Zill, L. P. 21-Mathematics

NSG 7038 **Utah State University** **3576**
The diagenesis of geologically important organic matter and amino acids under simulated natural conditions
Period *Obligations*
06/01/74-05/31/77 **FY76: \$72,000** **TOTAL: \$167,352**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Swanson, L. W. HQ-SB/Young, R. S. 32-Geological Sci
McNeely, D. R.

NSG 7206 **Utah State University** **3577**
Mass spectrometric study of chlorinated species by negative surface ionization
Period *Obligations*
03/15/76-09/15/76 **FY76: \$26,920** **TOTAL: \$26,920**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moore, W. M. HQ-SU/King, J., Jr. 12-Chemistry
McCullough, E. A., Jr. HQ-SU/Reed, E. F.

NSG 7210 **Utah State University** **3578**
Stratospheric monitoring with longterm balloon flights
Period *Obligations*
03/01/76-02/28/77 **FY76: \$124,093** **TOTAL: \$124,093**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Baker, K. D. HQ-SU/King, J., Jr. 31-Atmos Sci
Williamson, P. R. HQ-SU/Reed, E. F.
Aw, S. H.

VERMONT

NSG 7021 **University of Vermont** **3579**
Chemical evolution of aminolevulinic acid
Period *Obligations*
07/01/74-06/30/75 **FY76:** **TOTAL: \$18,785**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Thanassi, J. W. HQ-SB/Young, R. S. 12-Chemistry

VIRGINIA

NAS 1-13423 **Christopher Newport College** **3580**
Quality of control checks of VGH records
Period *Obligations*
07/01/74-06/30/75 **FY76:** **TOTAL: \$24,049**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roby, A. B. LARC/Morris, G. J. 41-Aero Engr
LARC/Jewel, J. W., Jr.

NAS 1-13913 **Christopher Newport College** **3581**
Quality control, wide-body jet transport VGH records
Period *Obligations*
05/05/75-01/01/77 **FY76: \$13,887** **TOTAL: \$46,887**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable LARC/Jewel, J. W., Jr. 41-Aero Engr

NAS 1-14034 **Christopher Newport College** **3582**
Quality control checks for VGH records
Period *Obligations*
07/01/75-09/30/76 **FY76:** **TOTAL: \$20,781**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roby, A. B. LARC/Morris, G. J. 41-Aero Engr
LARC/Jewel, J. W., Jr.

NAS 1-11958 **College of William And Mary** **3583**
Research in the physical and life sciences
Period *Obligations*
10/12/72-04/11/77 **FY76: \$44,394** **TOTAL: \$332,911**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aceto, H., Jr. LARC/Martin, D. J. 99-Multi-Discip

NGL 47-006-058 **College of William And Mary** **3584**
Research in the applied science program
Period *Obligations*
08/15/72-08/31/78 **FY76: \$50,000** **TOTAL: \$348,400**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rublein, G. T. LARC/Anderson, A. F. 99-Multi-Discip

NGR 47-006-054 **College of William And Mary** **3585**
Space-related mammalian radiology studies
Period *Obligations*
02/01/72-06/30/76 **FY76:** **TOTAL: \$413,905**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aceto, H., Jr. JSC/Hoffman, R. A. 51-Biology

NSG 1089 **College of William And Mary** **3586**
Theory of the properties of materials used in solid state sensors
Period *Obligations*
09/01/74-08/31/77 **FY76: \$27,247** **TOTAL: \$72,577**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Moriarity, J. A. LARC/Breckenridge, R. A. 13-Physics
Sher, A. LARC/Crouch, R. K.

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1095 **College of William And Mary** **3587**
Molecular weight-property relationships of high performance polymers used for adhesives and composites
Period *Obligations*
09/01/74-11/30/76 FY76: \$14,990 TOTAL: \$29,803
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kranbuehl, D. E. LARC/Young, P. R. 12-Chemistry

NSG 1203 **College of William And Mary** **3588**
Analysis of remote sensors for pollution
Period *Obligations*
08/01/75-07/31/77 FY76: \$28,719 TOTAL: \$53,822
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Park, J. H. LARC/Russell, J. M., III 31-Atmos Sci
LARC/Davis, R. E.

NSG 1204 **College of William And Mary** **3589**
Chemistry of the system: Al2O3(C)-HClAg
Period *Obligations*
06/15/75-06/14/77 FY76: \$23,243 TOTAL: \$46,237
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tyree, S. Y., Jr. LARC/Cofer, W. R., III 12-Chemistry

NSG 7073 **College of William And Mary** **3590**
The response of hematopoietic stem cells to different linear energy transfer distribution of helium ion beams
Period *Obligations*
05/23/74-12/31/75 FY76: TOTAL: \$20,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Aceto, H., Jr. HQ-SB/Jones, W. L. 59-Life Sci, NEC

NAS 6-2707 **Eastern Shore Community College** **3591**
Informing general public and schools of activities of Wallops Flight Center
Period *Obligations*
01/01/76-12/31/76 FY76: \$11,486 TOTAL: \$11,486
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable WFC/Milliner, J. B. 99-Multi-Discip

NAS 1-12445 **Hampton Institute** **3592**
Conversion of government owned VGH flight records into numerical tabulations for FY 74
Period *Obligations*
05/30/73-06/30/76 FY76: \$11,126 TOTAL: \$105,684
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, G. K. LARC/Jewel, J. W., Jr. 41-Aero Engr

NAS 1-14507 **Hampton Institute** **3593**
Conversion of flight records
Period *Obligations*
07/01/76-09/30/77 FY76: \$34,688 TOTAL: \$34,688
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, G. K. LARC/Jewel, J. W., Jr. 41-Aero Engr
LARC/Morris, G. J.

NCA 1-1 **Hampton Institute** **3594**
Summer faculty fellowship training program
Period *Obligations*
06/14/76-12/13/76 FY76: \$26,134 TOTAL: \$26,134
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Darden, G. C. LARC/Anderson, A. F. 49-Engr, NEC

NGR 47-020-006 **Hampton Institute** **3595**
Fast optical pulse recording system for laser ranging
Period *Obligations*
12/01/73-01/31/77 FY76: \$36,194 TOTAL: \$77,949
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trehan, A. K. WFC/Kim, H. H. 19-Phys Sci, NEC
WFC/Parsons, C. L.

NGR 47-020-008 **Hampton Institute** **3596**
Mossbauer effect and its application in material research
Period *Obligations*
01/01/74-06/30/76 FY76: TOTAL: \$45,187
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Han, K. S. LARC/Singh, J. J. 13-Physics

NSG 1011 **Hampton Institute** **3597**
Factors affecting aircraft ride quality: The effects of noise, motion, and the individual
Period *Obligations*
04/01/74-06/30/76 FY76: TOTAL: \$103,104
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Duncan, N. C. LARC/Catherines, J. J. 69-Psych, NEC
Conley, H. W. LARC/Mixson, J. S.

NSG 1086 **Hampton Institute** **3598**
High temperature kinetics studies of combustion processes by the shock tube technique
Period *Obligations*
08/01/74-06/30/77 FY76: TOTAL: \$31,506
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hunter, C. E. LARC/Jachimowski, C. J. 12-Chemistry

NSG 1146 **Hampton Institute** **3599**
Design and fabrication of a high resolution CRT/interface system
Period *Obligations*
02/03/75-06/15/76 FY76: \$6,141 TOTAL: \$22,303
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trehan, A. K. LARC/Katzberg, S. J. 45-Elec Engr

NSG 1294 **Hampton Institute** **3600**
Investigation of microprocessors as mass storage controllers for flight applications
Period *Obligations*
04/01/76-03/31/77 FY76: \$31,487 TOTAL: \$31,487
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Trehan, A. K. LARC/Katzberg, S. J. 45-Elec Engr

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1209 **Mary Baldwin College** **3601**
Faculty and student research participation in applied statistics at NASA/LRC
Period *Obligations*
07/01/75-08/31/76 **FY76:** **TOTAL: \$7,904**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sawyer, J. O. LARC/Campbell, J. W. 21-Mathematics

NSG 1014 **Norfolk State College** **3602**
Numerical computations research
Period *Obligations*
04/01/74-06/30/77 **FY76: \$25,558** **TOTAL: \$83,933**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Boseman, M. LARC/Shoosmith, J. N. 21-Mathematics

NSG 1074 **Norfolk State College** **3603**
Comfort judgements as a function of passenger and noise and vibration encountered on urban mass transit vehicles
Period *Obligations*
07/01/74-06/30/76 **FY76: \$30,000** **TOTAL: \$73,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Colegate, R. L. LARC/Dempsey, T.K. 59-Life Sci, NEC
Colson, W. N. LARC/Leatherwood, J. D.

NAS 1-9434 **Old Dominion University** **3604**
Research in physical and engineering sciences
Period *Obligations*
07/23/69-06/01/75 **FY76:** **TOTAL: \$828,554**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ousterhout, D. S. LARC/Martin, D. J. 99-Multi-Discip

NAS 1-11707 **Old Dominion University** **3605**
Research in physical and life sciences
Period *Obligations*
07/24/72-08/31/75 **FY76:** **TOTAL: \$1,081,710**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ousterhout, D. S. LARC/Martin, D. J. 49-Engr, NEC

NAS 1-13820 **Old Dominion University** **3606**
Program to simulate Raman scattering spectra of super combustion produced flows
Period *Obligations*
02/26/75-05/14/76 **FY76:** **TOTAL: \$20,494**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bandy, A. R. LARC/Hillard, M. E., Jr. 13-Physics
LARC/Hunter, W. W., Jr.

NAS 1-14193 **Old Dominion University** **3607**
Research in physical and life sciences
Period *Obligations*
10/01/75-09/30/77 **FY76: \$205,551** **TOTAL: \$205,551**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kuo, C. Y. LARC/Whitlock, C. H. 99-Multi-Discip
Blair, C. H.

NGL 47-003-008 **Old Dominion University** **3608**
Studies in heterocyclic synthesis
Period *Obligations*
07/05/67-08/16/76 **FY76:** **TOTAL: \$198,333**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Williams, R. L. LARC/Johnston, N. J. 12-Chemistry
LARC/Bell, V. L., Jr.

NGL 47-003-012 **Old Dominion University** **3609**
Theoretical description of soil-tire interaction under moving wheel of aircraft
Period *Obligations*
05/15/68-12/31/74 **FY76: \$8** **TOTAL: \$139,968**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cheng, R. LARC/Leland, T. J. 44-Civil Engr

NGL 47-003-039 **Old Dominion University** **3610**
Analysis of a cold jet on bodies of revolution in a subsonic free stream
Period *Obligations*
10/30/70-11/30/76 **FY76:** **TOTAL: \$114,463**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ousterhout, D. S. LARC/Gentry, G. L., Jr. 41-Aero Engr
LARC/Margason, R. J.

NGL 47-003-067 **Old Dominion University** **3611**
Interdisciplinary investigation of atmospheric processes and constituents of the mid-Atlantic coastal region
Period *Obligations*
05/10/72-05/31/77 **FY76:** **TOTAL: \$300,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kindle, E. C. HQ-P/Vitale, J. A. 31-Atmos Sci
WFC/Krieger, R. L.

NGR 47-003-043 **Old Dominion University** **3612**
Investigation of sources of errors in low density gas structure measurements
Period *Obligations*
09/18/70-02/29/76 **FY76: \$24,950** **TOTAL: \$262,676**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Brock, F. J. LARC/Outlaw, R. A. 13-Physics
Cox, J. L. LARC/Melfi, L. T., Jr.

NGR 47-003-048 **Old Dominion University** **3613**
Exciton coupling in molecular crystals
Period *Obligations*
03/08/71-07/31/76 **FY76:** **TOTAL: \$44,394**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ake, R. L. LARC/Phillips, D. H. 13-Physics

NGR 47-003-052 **Old Dominion University** **3614**
Graduate research program in aeronautics and air transportation
Period *Obligations*
05/12/71-08/31/78 **FY76: \$40,700** **TOTAL: \$470,315**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Roberts, A. S., Jr. LARC/Anderson, A. F. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NGR 47-003-068 **Old Dominion University** **3615**
Aerosol studies
Period *Obligations*
12/11/72-10/31/75 **FY76:** **TOTAL: \$102,064**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harris, F. S., Jr. LARC/Crumbley, K. H. 31-Atmos Sci
Kindle, E. C. LARC/McCormick, M. P.

NSG 1039 **Old Dominion University** **3622**
High temperature wideband pressure transducer
Period *Obligations*
09/01/74-02/28/77 **FY76: \$39,989** **TOTAL: \$74,439**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Zuckerwar, A. J. LARC/Holmes, H. K. 49-Engr, NEC
LARC/Mixson, J. S.

NGR 47-003-078 **Old Dominion University** **3616**
Heavy-heavy nuclear reactions
Period *Obligations*
01/30/73-06/30/76 **FY76:** **TOTAL: \$52,147**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Khandelwal, G. S. LARC/Wilson, J. W. 13-Physics

NSG 1040 **Old Dominion University** **3623**
Computer simulation of plasma and n-body problems
Period *Obligations*
06/01/74-12/31/76 **FY76: \$8,197** **TOTAL: \$43,069**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harries, W. L. LARC/Hohl, F. 19-Phys Sci, NEC

NGR 47-003-082 **Old Dominion University** **3617**
Optimum geometric configuration of space shuttle materials laboratory
Period *Obligations*
03/16/73-09/30/76 **FY76:** **TOTAL: \$253,660**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Clay, F. P., Jr. LARC/Melfi, L. T., Jr. 31-Atmos Sci
Heuser, J. E. LARC/Outlaw, R. A.

NSG 1055 **Old Dominion University** **3624**
Dosimeter for distributed body organs
Period *Obligations*
06/01/74-06/30/77 **FY76:** **TOTAL: \$29,804**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Khandelwal, G. S. LARC/Wilson, J. W. 19-Phys Sci, NEC

NGT 47-003-028 **Old Dominion University** **3618**
Summer faculty fellowship program in engineering systems design
Period *Obligations*
11/14/69-03/31/77 **FY76: \$106,685** **TOTAL: \$670,061**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. HQ-P/Carter, C. H. 49-Engr, NEC

NSG 1060 **Old Dominion University** **3625**
Active optical pollution sensors development
Period *Obligations*
06/01/74-09/30/76 **FY76: \$48,011** **TOTAL: \$131,878**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kindle, E. C. LARC/Remsburg, E. E. 31-Atmos Sci
Blais, R. N. LARC/Northam, G. B.

NGT 47-003-029 **Old Dominion University** **3619**
Summer faculty fellowship program in research
Period *Obligations*
11/14/69-03/31/77 **FY76: \$115,587** **TOTAL: \$758,801**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. HQ-P/Carter, C. H. 49-Engr, NEC

NSG 1079 **Old Dominion University** **3626**
Optimal adaptive wind tunnel control
Period *Obligations*
09/01/74-10/31/76 **FY76: \$19,000** **TOTAL: \$52,200**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tcheng, P. L. LARC/Tripp, J. S. 45-Elec Engr

NSG 1022 **Old Dominion University** **3620**
X-ray emission from high temperature plasmas
Period *Obligations*
05/01/74-06/30/77 **FY76: \$12,466** **TOTAL: \$36,466**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Harries, W. L. LARC/Hohl, F. 13-Physics

NSG 1087 **Old Dominion University** **3627**
Turbulence closure modeling for high Mach number turbulent shear flows
Period *Obligations*
08/01/74-11/30/76 **FY76: \$32,110** **TOTAL: \$61,170**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Hefner, J. N. 41-Aero Engr
Oh, Y. H.

NSG 1028 **Old Dominion University** **3621**
Collection, reduction, and interpretation of measurements
Period *Obligations*
04/01/74-05/31/77 **FY76: \$118,819** **TOTAL: \$183,767**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Keating, G. M. 31-Atmos Sci

NSG 1098 **Old Dominion University** **3628**
Investigation of nozzle afterbody viscous interaction effects by finite element methods
Period *Obligations*
09/09/74-05/30/77 **FY76: \$22,729** **TOTAL: \$37,724**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cooke, C. H. LARC/Harris, J. E. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1100 **Old Dominion University** **3629**
Study of compliant wall drag reduction turbulent boundary layer and a compliant surface
Period *Obligations*
09/09/74-09/08/76 FY76: \$24,965 TOTAL: \$40,900
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Ash, R. L. LARC/Hefner, J. N. 41-Aero Engr

NSG 1117 **Old Dominion University** **3630**
Addition of higher order plate and shell elements into the NASTRAN program
Period *Obligations*
10/04/74-03/03/77 FY76: \$22,305 TOTAL: \$43,529
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Narayanaswami, R. LARC/Weidman, D. J. 44-Civil Engr
Goglia, G. L. LARC/Walz, J. E.

NSG 1127 **Old Dominion University** **3631**
Parameterization of gaseous constituencies concentration profiles in the planetary boundary layers
Period *Obligations*
12/09/74-02/08/77 FY76: \$62,622 TOTAL: \$120,598
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kindle, E. C. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Beck, S. M.

NSG 1131 **Old Dominion University** **3632**
Remote measurements of atmospheric trace constituents
Period *Obligations*
01/01/75-01/31/77 FY76: \$27,885 TOTAL: \$54,707
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kindle, E. C. LARC/Russell, J. M., III 31-Atmos Sci
Twitty, J. LARC/Davis, R. E.

NSG 1135 **Old Dominion University** **3633**
Wind tunnel design studies and technical evaluation of advanced cargo aircraft concepts
Period *Obligations*
01/15/75-05/31/76 FY76: TOTAL: \$38,656
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/McKinney, L. W. 41-Aero Engr
Rao, D. M. LARC/Whitehead, A. H., Jr.

NSG 1143 **Old Dominion University** **3634**
Sensor for measuring instantaneous angle of attack of helicopter blades
Period *Obligations*
01/13/75-01/12/77 FY76: \$38,733 TOTAL: \$68,285
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Barna, P. S. LARC/Kershner, D. D. 41-Aero Engr
Murthy, V. R. LARC/Feller, C. E.

NSG 1152 **Old Dominion University** **3635**
The earth moon system: dynamics and parameter estimation
Period *Obligations*
02/17/75-10/16/78 FY76: \$73,041 TOTAL: \$125,179
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Breedlove, W. J., Jr. LARC/Gapcynski, J. P. 19-Phys Sci, NEC
LARC/Tolson, R. H.

NSG 1153 **Old Dominion University** **3636**
Radiative transfer models for nonhomogeneous atmosphere
Period *Obligations*
03/01/75-05/31/76 FY76: \$19,874 TOTAL: \$44,849
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tiwari, S. N. LARC/Reichle, H. G., Jr. 31-Atmos Sci
LARC/Beck, S. W.

NSG 1167 **Old Dominion University** **3637**
The structural behavior of advanced composite materials
Period *Obligations*
06/01/75-05/31/79 FY76: \$25,622 TOTAL: \$79,622
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Hyer, M. W. LARC/Davis, J. G., Jr. 41-Aero Engr
LARC/Pride, R. A.

NSG 1177 **Old Dominion University** **3638**
Experimental and analytical studies in fluidics
Period *Obligations*
05/01/75-02/28/77 FY76: \$26,866 TOTAL: \$36,866
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Hellbaum, R. F. 45-Elec Engr

NSG 1186 **Old Dominion University** **3639**
Space technology research planning study
Period *Obligations*
05/05/75-05/31/76 FY76: TOTAL: \$147,675
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Tynan, C. I., Jr. 99-Multi-Discip
LARC/Osborne, R. S.

NSG 1197 **Old Dominion University** **3640**
Development of high pressure gas lasers and heterodyne detector systems in the 8 to 11 micron spectral region
Period *Obligations*
06/01/75-10/31/76 FY76: TOTAL: \$37,307
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kindle, E. C. LARC/Allario, F. 31-Atmos Sci
Harward, C. N. LARC/Hoell, J. M.

NSG 1207 **Old Dominion University** **3641**
Collection, reduction and interpretation of the neutral thermospheric and exospheric measurements
Period *Obligations*
06/09/75-09/30/76 FY76: TOTAL: \$111,351
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Goglia, G. L. LARC/Keating, G. M. 19-Phys Sci, NEC
LARC/Lee, R. B., III

NASA'S UNIVERSITY PROGRAM VIRGINIA (Continued)

NSG 1225 **Old Dominion University** **3642**
Ride quality judgments as a function of environmental, personality and ride spectra correlates

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 08/01/75-12/31/76 | FY76: \$40,717 | TOTAL: \$40,717 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Coates, G. D. | LARC/Dempsey, T. K. | 69-Psych, NEC |
| Morgan, B. B. | LARC/Leatherwood, J. D. | |
| Kirby, R. H. | | |

NSG 1247 **Old Dominion University** **3648**
Effects of time varying aircraft noise on complex human performance

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$19,924 | TOTAL: \$19,924 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Coates, G. D. | LARC/Dempsey, T. K. | 69-Psych, NEC |
| Alluisi, E. A. | | |

NSG 1226 **Old Dominion University** **3643**
An analytical and/or numerical study of three-dimensional boundary layer flows

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$25,145 | TOTAL: \$25,145 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goglia, G. L. | LARC/Harris, J. E. | 41-Aero Engr |
| Vatsa, V. N. | LARC/Morris, D. J. | |

NSG 1252 **Old Dominion University** **3649**
Investigation of advanced remote sensing techniques for the measurement of aerosol characteristics

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 09/15/75-09/14/76 | FY76: \$38,233 | TOTAL: \$38,233 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Deepak, A. | LARC/McCormick, M. P. | 31-Atmos Sci |
| Becher, J. | LARC/Adams, R. R. | |

NSG 1236 **Old Dominion University** **3644**
Analytical and numerical investigation of structural response of compliant wall materials

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 08/26/75-08/25/76 | FY76: \$23,010 | TOTAL: \$23,010 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goglia, G. L. | LARC/Hefner, J. N. | 46-Mech Engr |

NSG 1259 **Old Dominion University** **3650**
A study on characterization of stratospheric aerosol and gas parameters with the spacecraft solar occultation experiment

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$46,711 | TOTAL: \$46,711 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Chu, W. P. | LARC/McCormick, M. P. | 31-Atmos Sci |
| Becher, J. | LARC/McMaster, L. R. | |

NSG 1237 **Old Dominion University** **3645**
Thermal-structural analysis of convectively cooled structures

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/01/75-08/31/76 | FY76: \$36,157 | TOTAL: \$36,157 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Thornton, E. A. | LARC/Adelman, H. M. | 41-Aero Engr |
| | LARC/Cooper, P. A. | |

NSG 1260 **Old Dominion University** **3651**
Improved optimum design of thermally loaded structures

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 01/01/76-12/31/77 | FY76: \$55,998 | TOTAL: \$55,998 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goglia, G. L. | LARC/Adelman, H. M. | 41-Aero Engr |
| Narayanawami, R. | LARC/Cooper, P. A. | |

NSG 1241 **Old Dominion University** **3646**
Linear and nonlinear analysis of orbital telescope/space shuttle dynamics and control

| Period | Obligations | |
|---------------------|----------------------|-----------------|
| 09/15/75-09/14/76 | FY76: \$28,360 | TOTAL: \$28,360 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Roberts, A. S., Jr. | LARC/Keckler, C. R. | 49-Engr, NEC |
| Joshi, S. M. | LARC/Anderson, W. W. | |

NSG 1271 **Old Dominion University** **3652**
Space shuttle experiments studies

| Period | Obligations | |
|-------------------|------------------------|------------------|
| 03/01/76-02/28/77 | FY76: \$149,669 | TOTAL: \$149,669 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brock, F. J. | LARC/Melfi, L. T., Jr. | 13-Physics |
| Ciay Jr., F. P. | LARC/Outlaw, R. A. | |

NSG 1245 **Old Dominion University** **3647**
Aerosol studies application to visibility measurements

| Period | Obligations | |
|--------------------|-------------------------|-----------------|
| 09/01/75-01/31/77 | FY76: \$35,453 | TOTAL: \$35,453 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Harris, F. S., Jr. | LARC/Fuller, W. H., Jr. | 39-Env Sci, NEC |
| Kindle, E. C. | | |

NSG 1279 **Old Dominion University** **3653**
Preliminary investigations into the active control of large space structures

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 02/15/76-02/14/77 | FY76: \$13,261 | TOTAL: \$13,261 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hyer, M. W. | LARC/Kruszewski, E. T. | 49-Engr, NEC |

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1282 **Old Dominion University** **3654**
Determination of atmospheric pollutants from infrared radiation measurements

| Period | Obligations | |
|-------------------|--------------------------|-----------------|
| 03/01/76-11/30/76 | FY76: \$25,354 | TOTAL: \$25,354 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Tiwari, S. N. | LARC/Reichle, H. G., Jr. | 31-Atmos Sci |
| | LARC/Beck, S. M. | |

NSG 1309 **Old Dominion University** **3655**
Experimental and analytical investigations to improve low-speed performance and stability and control characteristics of supersonic cruise fighter vehicles

| Period | Obligations | |
|-------------------|--------------------------|-----------------|
| 06/01/76-05/31/77 | FY76: \$19,505 | TOTAL: \$19,505 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goglia, G. L. | LARC/Coe, P. L., Jr. | 41-Aero Engr |
| Graham, A. B. | LARC/Johnson, J. L., Jr. | |

NSG 1311 **Old Dominion University** **3656**
Analytical and/or numerical studies to obtain a practical solution technique for the juncture region of intersecting surfaces

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 06/02/76-06/01/77 | FY76: \$25,007 | TOTAL: \$25,007 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goglia, G. L. | LARC/Bobbitt, P. J. | 41-Aero Engr |
| Patel, D. K. | LARC/Carter, J. E. | |

NSG 1315 **Old Dominion University** **3657**
Wind tunnel studies of advanced cargo concepts

| Period | Obligations | |
|-------------------|---------------------------|-----------------|
| 06/22/76-06/21/77 | FY76: \$39,066 | TOTAL: \$39,066 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Goglia, G. L. | LARC/Peterson, J. B., Jr. | 41-Aero Engr |
| Rao, D. M. | | |

NSG 1318 **Old Dominion University** **3658**
Correlation and analysis of Elevon seal test results

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 07/01/76-08/31/77 | FY76: \$30,361 | TOTAL: \$30,361 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Keshock, E. G. | LARC/Hunt, L. R. | 41-Aero Engr |
| | LARC/Deveikis, W. D. | |

NSG 1321 **Old Dominion University** **3659**
Concepts for structurally compatible thermal finite elements

| Period | Obligations | |
|-------------------|---------------------|-----------------|
| 09/01/76-08/31/77 | FY76: \$20,501 | TOTAL: \$20,501 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Thornton, E. A. | LARC/Wieting, A. R. | 49-Engr, NEC |

NSG 5053 **Old Dominion University** **3660**
Radiation investigations of optical and electronic components used in astronomical satellite studies

| Period | Obligations | |
|-------------------|---------------------|------------------|
| 02/17/75-03/15/77 | FY76: \$92,768 | TOTAL: \$152,747 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Becher, J. | GSFC/Kelsall, T. N. | 19-Phys Sci, NEC |
| Kernell, R. L. | GSFC/Fowler, W. B. | |
| Clay, F. P., Jr. | | |

NSG 6002 **Old Dominion University** **3661**
Design, construction and testing of a Rhodamine-B ozone sonder

| Period | Obligations | |
|-------------------|--------------------|----------------|
| 01/22/75-12/31/75 | FY76: | TOTAL: \$6,652 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Bandy, A. R. | WFC/Holland, A. C. | 31-Atmos Sci |

NAS 1-10210 **University of Virginia** **3662**
Master agreement for research and development in the physical and life sciences and engineering

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 07/24/70-04/30/75 | FY76: \$1,000 | TOTAL: \$168,581 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| White, E. J. | LARC/Kelly, W. L. | 45-Elec Engr |

NAS 1-12754 **University of Virginia** **3663**
Research in the physical and life sciences

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 10/26/73-10/26/76 | FY76: \$98,523 | TOTAL: \$198,505 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Barnes, D. W. | LARC/Martin, D. J. | 99-Multi-Discip |

NAS 5-20999 **University of Virginia** **3664**
Analysis of data for ERTS follow-on investigation

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 04/03/75-10/03/77 | FY76: \$46,442 | TOTAL: \$87,442 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Dolan, R. | GSFC/Crump, E. W. | 39-Env Sci, NEC |
| Hayden, B. P. | | |
| Ywood, H. E. | | |

NAS 5-22346 **University of Virginia** **3665**
Design and application of a one meter UV-optical telescope for spacelab astronomy missions

| Period | Obligations | |
|------------------------|----------------------|-----------------|
| 04/29/75-12/31/76 | FY76: \$16,928 | TOTAL: \$19,504 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Counselman, C. C., III | GSFC/Leckrone, D. S. | 11-Astronomy |
| Pettengill, G. H. | | |

NAS 5-23496 **University of Virginia** **3666**
Five management case studies on project management shared experiences

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 03/10/76-04/30/76 | FY76: \$26,318 | TOTAL: \$26,318 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gibson, J. | GSFC/Morse, S. | 99-Multi-Discip |

NASA'S UNIVERSITY PROGRAM VIRGINIA (Continued)

NCA 2-825501 **University of Virginia** **3667**
Animal models and instrumentation for quantitative effects of space sickness

| Period | Obligations | |
|-------------------|-----------------------|-----------------|
| 05/01/75-09/30/76 | FY76: TOTAL: \$13,200 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Updike, O. L. | ARC/Zill, L. P. | 52-Clinical Med |

NGR 47-005-204 **University of Virginia** **3673**
Study of astromatic multiplexing area scanner for large space telescope

| Period | Obligations | |
|-------------------|----------------------|---------------|
| 07/01/75-06/30/76 | FY76: TOTAL: \$6,000 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Frederick, L. W. | GSFC/Sobieski, S. | 11-Astronomy |
| Rakosch, K. | GSFC/Meese, K. J. | |

NGL 47-005-066 **University of Virginia** **3668**
Studies in astronomy and related scientific and engineering fields

| Period | Obligations | |
|-------------------|------------------------|---------------|
| 10/10/66-09/14/77 | FY76: TOTAL: \$199,256 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Frederick, L. W. | HQ-SA/Roman, N. G. | 11-Astronomy |
| | HQ-SA/Bogges, N. W. | |

NGR 47-005-208 **University of Virginia** **3674**
Effects of aircraft design on STOL ride quality: a simulator study

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 06/07/73-02/28/77 | FY76: \$31,215 TOTAL: \$102,738 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Jacobson, I. R. | LARC/Lichtenstein, J. H. | 41-Aero Engr |
| | LARC/Queijo, M. J. | |

NGR 47-005-172 **University of Virginia** **3669**
Interpretation of surface features and surface processes on Mars

| Period | Obligations | |
|-------------------|---------------------------------|-------------------|
| 03/03/71-12/31/76 | FY76: \$43,667 TOTAL: \$215,396 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Howard, A. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| Dolan, R. | HQ-SL/Holt, H. E. | |

NGR 47-005-213 **University of Virginia** **3675**
Study of rats under chronic exposure, high protein diet, and exercise during centrifugation

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 08/01/73-09/30/76 | FY76: \$24,995 TOTAL: \$94,930 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Pitts, G. C. | ARC/Oyama, J. | 51-Biology |

NGR 47-005-176 **University of Virginia** **3670**
Trace element analysis of mineral separates and determination of partition coefficients

| Period | Obligations | |
|-------------------|-------------------------------|-------------------|
| 06/07/71-07/31/76 | FY76: \$9,200 TOTAL: \$60,349 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Allen, R. O. | HQ-SL/French, B. M. | 32-Geological Sci |

NGR 47-005-219 **University of Virginia** **3676**
Unsteady loads due to propulsive lift configurations

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 01/01/74-12/31/76 | FY76: \$49,964 TOTAL: \$129,770 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Haviland, J. K. | LARC/Schoenster, J. A. | 41-Aero Engr |
| Morton, J. B. | LARC/Mixson, J. S. | |

NGR 47-005-181 **University of Virginia** **3671**
The development of a model for predicting passenger acceptance and choice of air transportation systems

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 06/15/71-07/31/76 | FY76: \$60,015 TOTAL: \$556,272 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Kuhlthau, A. R. | LARC/Schoonover, W. E., Jr. | 41-Aero Engr |
| Jacobson, I. D. | | |

NSG 1010 **University of Virginia** **3677**
Superconducting magnetic suspension and balance experiment

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 03/01/74-09/30/76 | FY76: \$16,000 TOTAL: \$218,700 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Zapata, R. N. | LARC/Kilgore, R. A. | 41-Aero Engr |
| | LARC/Boyden, R. P. | |

NSG 1101 **University of Virginia** **3678**
Optimization and sensitivity studies of flight-path trajectories

| Period | Obligations | |
|-------------------|-------------------------------|---------------|
| 09/16/74-09/15/76 | FY76: \$6,849 TOTAL: \$36,786 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Cook, G. | LARC/Hueschen, R. M. | 49-Engr, NEC |
| | LARC/Walsh, T. M. | |

NGR 47-005-186 **University of Virginia** **3672**
Vestibular system in a sample of amphibian and reptilian species

| Period | Obligations | |
|-------------------|--------------------------------|---------------|
| 10/12/71-01/31/77 | FY76: \$15,000 TOTAL: \$73,451 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ebbesson, S. O. | ARC/Mehler, W. R. | 51-Biology |
| Peterson, E. | | |

NSG 1128 **University of Virginia** **3679**
Optimization of MLS receivers for multipath environments

| Period | Obligations | |
|-------------------|---------------------------------|---------------|
| 12/16/74-08/31/76 | FY76: \$96,132 TOTAL: \$126,099 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| McAlpine, G. A. | LARC/Shultz, L. R. | 45-Elec Engr |
| Highfill, J. H. | LARC/Bundick, W. T. | |

NASA'S UNIVERSITY PROGRAM **VIRGINIA (Continued)**

NSG 1151 **University of Virginia** **3680**
Real time flight simulation methodology for real-time flight simulations

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 03/01/75-02/28/77 | FY76: \$51,145 | TOTAL: \$101,145 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Parrish, E. A., Jr. | LARC/Barker, L. E. | 21-Mathematics |
| Cook, G. | | |
| Vey, M. C. | | |

NSG 1180 **University of Virginia** **3681**
Study of interior aircraft cabin noise

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/19/75-06/30/77 | FY76: | TOTAL: \$48,259 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jacobson, I. D. | LARC/Leatherwood, J. D. | 41-Aero Engr |
| | LARC/Dempsey, T. K. | |

NSG 1223 **University of Virginia** **3682**
Potential applications of the operational sampled analog processor

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/01/75-07/31/76 | FY76: \$49,994 | TOTAL: \$49,994 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Parrish, E. A., Jr. | LARC/Husson, C. | 45-Elec Engr |
| McVey, E. S. | LARC/Wells, J. G., Jr. | |

NSG 1256 **University of Virginia** **3683**
Interplanetary dust studies

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/75-09/30/76 | FY76: \$17,500 | TOTAL: \$17,500 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Singer, S. F. | LARC/Alvarez, J. M. | 11-Astronomy |

NSG 1274 **University of Virginia** **3684**
A system study of factors affecting acceptance of helicopter transportation

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/15/76-10/14/76 | FY76: \$32,924 | TOTAL: \$32,924 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Jacobson, I. D. | LARC/Snyder, W. J. | 49-Engr, NEC |
| Schoultz, M. B. | LARC/Tapscott, R. J. | |

NGL 47-002-005 **Virginia Commonwealth University** **3685**
Radiation hazards to the eye

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/25/65-04/30/77 | FY76: | TOTAL: \$488,317 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Ham, W. T. | HQ-SB/Saunders, J. F. | 51-Biology |
| | HQ-SB/Jones, W. L. | |

NGL 47-002-020 **Virginia Commonwealth University** **3686**
Microbiological performance testing on water management subsystem for a four man space capsule

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/23/68-05/31/77 | FY76: | TOTAL: \$252,162 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Dalton, H. P. | LARC/Wilkins, J. R. | 51-Biology |

NGR 47-002-041 **Virginia Commonwealth University** **3687**
Isomer effects on polyimide properties

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/11/72-10/31/76 | FY76: | TOTAL: \$51,355 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Stump, B. L. | LARC/Bell, V. L., Jr. | 12-Chemistry |

NGR 47-018-005 **Virginia Military Institute** **3688**
Digital adaptive control of a VTOL aircraft

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 11/01/73-02/28/77 | FY76: \$9,679 | TOTAL: \$30,340 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Reid, G. F. | LARC/Creedon, J. F. | 41-Aero Engr |

NAS 1-10646 **Virginia Polytechnic Institute** **3689**
Research and development in the life sciences, physical sciences, and engineering

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/12/71-05/31/75 | FY76: | TOTAL: \$363,912 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Wightman, J. P. | LARC/Byvik, C. E. | 31-Atmos Sci |

NAS 1-13175 **Virginia Polytechnic Institute** **3690**
Research in the physical and life sciences

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/10/74-05/10/76 | FY76: \$7,621 | TOTAL: \$207,531 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Robertson, R. M. | LARC/Martin, D. J. | 49-Engr, NEC |

NAS 1-13884 **Virginia Polytechnic Institute** **3691**
Study of theory of acoustical propagation through a high subsonic Mach number duct constriction

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/25/75-04/25/77 | FY76: | TOTAL: \$93,660 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nayfeh, A. H. | LARC/Posey, J. W. | 13-Physics |

NAS 3-18553 **Virginia Polytechnic Institute** **3692**
Basic research in advanced acoustic suppression concepts

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/07/74-10/06/75 | FY76: | TOTAL: \$56,865 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Robertson, R. A. | LERC/Baumeister, K. J. | 49-Engr, NEC |

NAS 5-21984 **Virginia Polytechnic Institute** **3693**
Study of the ATS-F millimeter wave experiment

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 01/31/74-09/01/75 | FY76: | TOTAL: \$174,447 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Bostian, C. W. | GSFC/Hirschmann, E. | 45-Elec Engr |
| Stutzman, W. L. | | |
| Wiley, P. H. | | |

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NAS 5-22577 **Virginia Polytechnic Institute** **3694**
Communication link characterization experiment
Period *Obligations*
09/08/75-09/08/76 **FY76: \$96,000** **TOTAL: \$96,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bostian, C. W. GSFC/Hirschmann, E. 45-Elec Engr
Stutzman, W. L.
Manus, E. A.

NAS 6-2388 **Virginia Polytechnic Institute** **3695**
Remote sensing in agriculture
Period *Obligations*
11/01/73-07/01/77 **FY76: \$143,000** **TOTAL: \$214,410**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Pettry, D. E. WFC/Scott, J. H. 39-Env Sci, NEC

NAS 9-14862 **Virginia Polytechnic Institute** **3696**
A feasibility analysis for the development of a stereofluoroscopy system
Period *Obligations*
01/01/76-10/31/76 **FY76: \$5,000** **TOTAL: \$5,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Rivers, D. B. JSC/Day, J. L. 49-Engr, NEC

NGL 47-004-067 **Virginia Polytechnic Institute** **3697**
Measurement of the ground wind structure
Period *Obligations*
06/15/70-09/30/76 **FY76: \$55,010** **TOTAL: \$408,010**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Tieleman, H. W. WFC/Carr, R. E. 31-Atmos Sci

NGL 47-004-080 **Virginia Polytechnic Institute** **3698**
Synthesis, energetics, and chemical characterization of unusual molecules of interest in astronomy at temperatures below 100 K
Period *Obligations*
04/19/71-06/30/76 **FY76:** **TOTAL: \$61,960**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
McGee, H. A. HQ-SL/Fellows, R. F. 11-Astronomy

NGR 47-004-090 **Virginia Polytechnic Institute** **3699**
Research program in aeronautics & air transportation systems
Period *Obligations*
06/25/71-06/30/77 **FY76: \$100,000** **TOTAL: \$489,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Drew, D. R. LARC/Anderson, A. F. 41-Aero Engr

NGR 47-004-108 **Virginia Polytechnic Institute** **3700**
Correlation of creep rate with microstructural changes during high temperature creep
Period *Obligations*
06/08/72-02/29/76 **FY76:** **TOTAL: \$76,358**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Lytton, J. L. LARC/Stein, B. A. 47-Materials Engr
Young, C. T.

NGR 47-004-114 **Virginia Polytechnic Institute** **3701**
Crash safety of general aviation aircraft
Period *Obligations*
09/19/72-12/31/76 **FY76: \$29,950** **TOTAL: \$162,835**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kamat, M. P. LARC/Hayduk, R. J. 44-Civil Engr
Swift, G. W. LARC/Thomson, R. G.

NGR 47-004-116 **Virginia Polytechnic Institute** **3702**
Investigation of digital flight control systems
Period *Obligations*
01/11/73-12/31/76 **FY76: \$16,106** **TOTAL: \$67,875**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Caglayan, A. K. LARC/Montgomery, R. C. 41-Aero Engr
Van Landingham, H. F.

NGR 47-004-126 **Virginia Polytechnic Institute** **3703**
Spin stabilization of flexible satellites about nontrivial equilibrium positions
Period *Obligations*
04/15/74-07/31/75 **FY76:** **TOTAL: \$24,960**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Meirovitch, L. GSFC/Fedor, J. V. 11-Astronomy

NGR 47-004-129 **Virginia Polytechnic Institute** **3704**
Composite materials research and education
Period *Obligations*
01/01/74-08/31/76 **FY76: \$48,572** **TOTAL: \$104,608**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Herakovich, C. T. LARC/Davis, J. G., Jr. 49-Engr, NEC
LARC/Tenney, D. R.

NSG 1015 **Virginia Polytechnic Institute** **3705**
Self reorganizing flight control systems geometric formulation
Period *Obligations*
03/06/74-10/15/76 **FY76: \$18,830** **TOTAL: \$41,265**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Cliff, E. M. LARC/Montgomery, R. C. 41-Aero Engr

NSG 1020 **Virginia Polytechnic Institute** **3706**
Determining ion kinetic energies by a method of mass spectrometer peak-shape variation
Period *Obligations*
07/01/74-09/30/76 **FY76: \$5,000** **TOTAL: \$15,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Sanzone, G. LARC/Smith, A. 13-Physics

NSG 1024 **Virginia Polytechnic Institute** **3707**
Photoelastic determination of stress intensity factors for cracks emanating from fastener loaded holes
Period *Obligations*
09/15/74-03/14/77 **FY76:** **TOTAL: \$48,828**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Smith, C. W. LARC/Newman, J. C., Jr. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM
VIRGINIA (Continued)

NSG 1064 **Virginia Polytechnic Institute** **3708**
 Synthesis and polymerization of aromatic secondary diamines
Period *Obligations*
 06/01/74-12/31/76 FY76: \$10,303 TOTAL: \$43,173
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wolfe, J. F. LARC/Johnston, N. J. 12-Chemistry
 LARC/Bell, V. L., Jr.

NSG 1071 **Virginia Polytechnic Institute** **3709**
 Statistical studies in the advanced technology laboratory program
Period *Obligations*
 07/01/74-06/15/76 FY76: TOTAL: \$35,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hinkelmann, K. LARC/Campbell, J. W. 21-Mathematics
 Myers, R. H.

NSG 1085 **Virginia Polytechnic Institute** **3710**
 Kinetics of the reactions of acid anhydrides with aromatic amines in aprotic solvents
Period *Obligations*
 07/01/74-10/31/76 FY76: \$12,963 TOTAL: \$62,556
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mason, J. G. LARC/Young, P. R. 12-Chemistry

NSG 1099 **Virginia Polytechnic Institute** **3711**
 Statistical distribution of time to crack initiation using service data
Period *Obligations*
 09/16/74-09/14/76 FY76: TOTAL: \$41,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Heller, R. A. LARC/Davidson, J. R. 41-Aero Engr
 Yang, J. N. LARC/Leybold, H. A.

NSG 1109 **Virginia Polytechnic Institute** **3712**
 Stability and control of flexible spacecraft
Period *Obligations*
 10/01/74-06/30/76 FY76: TOTAL: \$34,165
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meirovitch, L. LARC/Kruszewski, E. T. 44-Civil Engr
 Van Landingham, H. F.

NSG 1114 **Virginia Polytechnic Institute** **3713**
 Structural dynamics, stability and control of helicopters
Period *Obligations*
 10/08/74-10/31/76 FY76: \$38,995 TOTAL: \$73,755
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Meirovitch, L. LARC/Kvaternik, R. G. 41-Aero Engr

NSG 1119 **Virginia Polytechnic Institute** **3714**
 Analysis of solid-rocket effluents for aluminum, silicon and other trace elements by neutron activation analysis
Period *Obligations*
 10/24/74-02/28/77 FY76: \$7,500 TOTAL: \$9,500
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Furr, A. K. LARC/Sentell, R. J. 13-Physics

NSG 1124 **Virginia Polytechnic Institute** **3715**
 A fundamental approach to adhesion: synthesis surface analysis, thermodynamics and mechanics
Period *Obligations*
 12/01/74-11/30/76 FY76: \$86,377 TOTAL: \$123,182
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wightman, J. P. LARC/Progar, D. J. 12-Chemistry
 LARC/Bell, V. L., Jr.

NSG 1182 **Virginia Polytechnic Institute** **3716**
 Statistical study of ozone in the atmosphere
Period *Obligations*
 07/01/75-11/30/76 FY76: TOTAL: \$19,765
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Myers, R. H. LARC/Campbell, J. W. 31-Atmos Sci

NSG 1195 **Virginia Polytechnic Institute** **3717**
 Interaction of hydrogen chloride with alumina
Period *Obligations*
 06/01/75-08/31/76 FY76: TOTAL: \$16,625
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Wightman, J. P. LARC/Pellett, G. L. 12-Chemistry

NSG 1214 **Virginia Polytechnic Institute** **3718**
 Fiber reinforcement and surface protection of selected titanium alloys
Period *Obligations*
 07/01/75-08/31/76 FY76: \$14,413 TOTAL: \$57,295
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Houska, C. R. LARC/Tenney, D. R. 47-Materials Engr

NSG 1230 **Virginia Polytechnic Institute** **3719**
 Microbiological experiments for the long duration exposure facility--space shuttle missions
Period *Obligations*
 09/15/75-03/14/77 FY76: \$11,766 TOTAL: \$11,766
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Drew, S. W. LARC/Dibattista, J. D. 43-Chem Engr
 Rony, P. R. LARC/O'Neal, R. L.

NSG 1238 **Virginia Polytechnic Institute** **3720**
 Signature analysis of acoustic emissions from composites
Period *Obligations*
 10/01/75-12/31/76 FY76: \$19,960 TOTAL: \$19,960
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Henneke, E. G. LARC/Wichorek, G. R. 49-Engr, NEC
 Herakovich, C. T. LARC/Pride, R. A.

NSG 1239 **Virginia Polytechnic Institute** **3721**
 Aircraft adaptive learning control systems
Period *Obligations*
 09/15/75-09/14/76 FY76: \$15,818 TOTAL: \$15,818
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Van Landingham, H. LARC/Montgomery, R. C. 41-Aero Engr

NASA'S UNIVERSITY PROGRAM

VIRGINIA (Continued)

NSG 1250 **Virginia Polytechnic Institute** **3722**
 High temperature composite materials for aerospace structures research

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$16,754 | TOTAL: \$16,754 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Herakovich, C. T. | LARC/Davis, J. G., Jr. | 49-Engr, NEC |
| | LARC/Dexter, H. B. | |

NSG 1254 **Virginia Polytechnic Institute** **3723**
 Short beam shear tests of polymeric laminates and unidirectional composites

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$19,994 | TOTAL: \$19,994 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stinchcomb, W. W. | LARC/Price, H. L. | 46-Mech Engr |
| Henneke, E. G. | | |

NSG 1255 **Virginia Polytechnic Institute** **3724**
 Application of stability theory to laminar flow control

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 10/01/75-09/30/76 | FY76: \$60,000 | TOTAL: \$60,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nayfeh, A. H. | LARC/Hefner, J. N. | 41-Aero Engr |

NSG 1262 **Virginia Polytechnic Institute** **3725**
 Steady vortex lattice technique development

| Period | Obligations | |
|-------------------|------------------------|-----------------|
| 12/01/75-08/31/76 | FY76: \$15,041 | TOTAL: \$15,041 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Nayfeh, A. H. | LARC/Yates, E. C., Jr. | 41-Aero Engr |
| Mook, D. T. | LARC/Gloss, B. B., Jr. | |
| Kandil, O. A. | | |

NSG 1275 **Virginia Polytechnic Institute** **3726**
 An analytic study of a laminar diffusion flame

| Period | Obligations | |
|-------------------|--------------------|------------------|
| 01/15/76-12/14/76 | FY76: \$10,429 | TOTAL: \$10,429 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Frair, K. L. | LARC/Maahs, H. G. | 19-Phys Sci, NEC |

NSG 1276 **Virginia Polytechnic Institute** **3727**
 A method for experimental model separation

| Period | Obligations | |
|----------------------|----------------------|-----------------|
| 02/15/76-02/14/77 | FY76: \$24,949 | TOTAL: \$24,949 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Hallauer, W. L., Jr. | LARC/Miserentino, R. | 49-Engr, NEC |
| Weisshaar, T. A. | LARC/Pinson, L. | |

NSG 1286 **Virginia Polytechnic Institute** **3728**
 Research in acetylene containing monomers

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 03/01/76-02/28/77 | FY76: \$23,600 | TOTAL: \$23,600 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Ogliaruso, M. A. | LARC/St Clair, T. L. | 12-Chemistry |
| | LARC/Johnston, N. J. | |

NSG 2016 **Virginia Polytechnic Institute** **3729**
 Aeroelastic phenomena associated with oblique winged aircraft

| Period | Obligations | |
|-------------------|-------------------------|-----------------|
| 04/01/74-08/31/76 | FY76: | TOTAL: \$46,501 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Weisshaar, T. A. | ARC/Gaspers, P. A., Jr. | 41-Aero Engr |

NSG 2038 **Virginia Polytechnic Institute** **3730**
 Fundamental investigation of failure of fiber composites

| Period | Obligations | |
|-------------------|---------------------|-------------------|
| 10/01/74-09/31/76 | FY76: \$60,757 | TOTAL: \$152,700 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Brinson, H. F. | ARC/Williams, D. P. | 47-Materials Engr |

NSG 3073 **Virginia Polytechnic Institute** **3731**
 Studies of internal flow fields of high throat-Mach number quiet engine inlets

| Period | Obligations | |
|-------------------|----------------------|-----------------|
| 10/01/75-02/01/77 | FY76: \$30,005 | TOTAL: \$30,005 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Jakubowski, A. K. | LERC/Diedrich, J. H. | 41-Aero Engr |
| Schetz, J. A. | | |

NSG 7111 **Virginia Polytechnic Institute** **3732**
 Review of possible studies of the mineralogy and petrology of Mars and Mercury

| Period | Obligations | |
|-------------------|----------------------|-------------------|
| 01/20/75-10/31/75 | FY76: | TOTAL: \$3,000 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Gilbert, C. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |

NGL 47-014-009 **Virginia State College** **3733**
 Numerical treatment of sound propagation through a duct

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/29/73-06/30/77 | FY76: | TOTAL: \$79,442 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Agrawal, K. M. | LARC/Lester, H. C. | 41-Aero Engr |

NGR 47-014-006 **Virginia State College** **3734**
 Research program in nuclear and solid state physics

| Period | Obligations | |
|-------------------|--------------------|-----------------|
| 06/23/72-12/31/76 | FY76: \$23,649 | TOTAL: \$92,716 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Stronach, C. E. | LARC/Wilson, J. W. | 13-Physics |

WASHINGTON

NAS 1-9694 **University of Washington** **3735**
 Participation in the science planning for the Viking 1975 missions in the area of meteorology

| Period | Obligations | |
|-------------------|---------------------------|------------------|
| 04/27/70-03/31/77 | FY76: \$159,247 | TOTAL: \$373,919 |
| Prin. Invest. | NASA Tech. Officer | CASE Category |
| Leovy, C. B. | LARC/Williams, T. S., Jr. | 31-Atmos Sci |
| | LARC/Glenny, W. R. | |

NASA'S UNIVERSITY PROGRAM

WASHINGTON (Continued)

NAS 1-14341 **University of Washington** **3736**
 Science support for the limb infrared monitor of the stratosphere experiment
Period *Obligations*
 04/12/76-10/31/78 FY76: \$10,000 **TOTAL: \$10,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Leovy, C. B. LARC/Russell, J. M., III 31-Atmos Sci
 LARC/James, R. L., Jr.

NAS 2-8541 **University of Washington** **3737**
 Conducting 50 bone assays and 200 serum PTH assays
Period *Obligations*
 08/01/74-06/30/76 FY76: **TOTAL: \$11,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Baylink, D. J. ARC/Holton, E. M. 53-Other Medical
 ARC/Sandler, H.

NAS 5-22379 **University of Washington** **3738**
 Study of the HR diagram to find the boundary line for effective hydrogen convection zones
Period *Obligations*
 04/09/75-06/24/77 FY76: \$11,278 **TOTAL: \$29,566**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Bohm-Vitense, E. GSFC/Underhill, A. B. 11-Astronomy

NAS 9-13029 **University of Washington** **3739**
 Total body calcium analysis
Period *Obligations*
 06/29/72-10/01/76 FY76: \$19,999 **TOTAL: \$252,485**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Nelp, W. B. JSC/Rambaut, P. C. 59-Life Sci, NEC

NAS 9-13743 **University of Washington** **3740**
 Scanning electron microscope analysis
Period *Obligations*
 11/21/73-11/30/76 FY76: \$5,000 **TOTAL: \$16,000**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Brownlee, D. E. JSC/Horz, F. 32-Geological Sci

NCA 2-850501 **University of Washington** **3741**
 Modeling of the stable atmospheric boundary layer
Period *Obligations*
 04/01/75-04/30/76 FY76: **TOTAL: \$7,875**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Businger, J. A. ARC/Zill, L. P. 41-Aero Engr

NCA 2-850602 **University of Washington** **3742**
 Study of the effects of thermal exposure porosity
Period *Obligations*
 07/01/75-06/30/76 FY76: \$11,035 **TOTAL: \$11,035**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, J. I. ARC/Zill, L. P. 46-Mech Engr

NGL 48-002-004 **University of Washington** **3743**
 Multidisciplinary research in materials sciences with emphasis on investigation of inorganic nonmetallic ceramic materials
Period *Obligations*
 06/28/73-05/31/79 FY76: \$200,000 **TOTAL: \$3,519,170**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Mueller, J. I. LERC/Lad, R. A. 47-Materials Engr

NGL 48-002-010 **University of Washington** **3744**
 Experimental and theoretical investigation of wind tunnel geometry, emphasizing factors pertinent to V/STOL vehicle testing
Period *Obligations*
 10/30/64-09/14/76 FY76: **TOTAL: \$382,820**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Joppa, R. G. LARC/Heyson, H. H. 41-Aero Engr

NGL 48-002-035 **University of Washington** **3745**
 An experimental investigation of wind tunnel test limits for V/STOL type vehicles in wind tunnels with curved walls
Period *Obligations*
 08/19/66-06/30/77 FY76: **TOTAL: \$185,428**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Rae, W. H. LARC/Heyson, H. H. 41-Aero Engr

NGL 48-002-044 **University of Washington** **3746**
 Generation of coherent radiation and the use of intense coherent radiation for generation of plasmas
Period *Obligations*
 05/19/67-11/14/76 FY76: \$82,000 **TOTAL: \$687,900**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hertzberg, A. HQ-RR/Thom, K. 13-Physics
 Pietrzyk, Z. A. ARC/Billman, K. W.

NGL 48-002-047 **University of Washington** **3747**
 Interaction shock wave and turbulent boundary layer
Period *Obligations*
 09/16/67-06/30/79 FY76: \$44,000 **TOTAL: \$397,659**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Childs, M. E. ARC/Rose, W. C. 41-Aero Engr

NGR 48-002-003 **University of Washington** **3748**
 Use of photoelastic methods to establish a procedure for stress analysis of a viscoelastic model subjected to transient temperature and time-dependent loading
Period *Obligations*
 04/03/63-12/31/76 FY76: **TOTAL: \$261,810**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hodge, P. W. HQ-SL/Fellows, R. F. 41-Aero Engr
 HQ-SL/Donn, B. D.

NGR 48-002-033 **University of Washington** **3749**
 Study of interplanetary dust
Period *Obligations*
 10/17/66-12/31/76 FY76: \$49,310 **TOTAL: \$329,167**
Prin. Invest. *NASA Tech. Officer* *CASE Category*
 Hodge, P. W. HQ-SL/Fellows, R. F. 11-Astronomy
 HQ-SA/Logan, W.

NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)

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|-----------------------|---------------------------------|----------------------|-----------------------------|--|
| NGR 48-002-107 | University of Washington | 3750 | High Reynolds numbers flows | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 01/28/71-05/15/77 | FY76: \$50,635 | TOTAL: \$273,379 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Russell, D. A. | ARC/Steinle, F. W., Jr. | 41-Aero Engr | | |
| Tuzla, K. | ARC/Steinle, F. W., Jr. | | | |

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|-----------------------|---------------------------------|----------------------|---|--|
| NGR 48-002-130 | University of Washington | 3751 | Models of primordial self-replicating systems | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 07/19/72-03/01/76 | FY76: | TOTAL: \$13,500 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Gordon, M. P. | HQ-SB/Geib, D. S. | 51-Biology | | |

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|-----------------------|---------------------------------|----------------------|--|--|
| NGR 48-002-141 | University of Washington | 3752 | Research program in aeronautics & air transportation | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 05/10/72-01/31/79 | FY76: \$143,485 | TOTAL: \$273,485 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Childs, M. E. | ARC/Rose, W. C. | 41-Aero Engr | | |
| Gessner, F. B. | ARC/Watson, E. C. | | | |

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|-----------------------|---------------------------------|----------------------|--|--|
| NGR 48-002-142 | University of Washington | 3753 | Analysis of continuum channel light curves | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 10/03/72-07/31/76 | FY76: | TOTAL: \$74,299 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Jin, R. S. | HQ-SL/Brunk, W. E. | 11-Astronomy | | |

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|-----------------------|---------------------------------|----------------------|-----------------------|--|
| NGR 48-002-149 | University of Washington | 3754 | Lunar sample analysis | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 10/01/72-01/31/77 | FY76: \$55,600 | TOTAL: \$185,979 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Ghose, S. | JSC/Harris, J. W. | 13-Physics | | |

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|-----------------------|---------------------------------|----------------------|---|--|
| NGR 48-002-153 | University of Washington | 3755 | Classification and mapping of planetary soils | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 02/12/73-10/31/75 | FY76: | TOTAL: \$3,000 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Vgolih, F. C. | HQ-SL/Dwornik, S. E. | 32-Geological Sci | | |

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|-----------------------|---------------------------------|----------------------|---|--|
| NGR 48-002-154 | University of Washington | 3756 | Study of physical conditions in interplanetary and magnetospheric regions | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 08/01/73-07/31/76 | FY76: | TOTAL: \$44,017 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Parks, G. K. | HO-ST/Schmerling, E. R. | 13-Physics | | |

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|-----------------------|---------------------------------|----------------------|---|--|
| NGR 48-002-162 | University of Washington | 3757 | Atmospheric studies based on Mariner 9 data | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 07/01/73-06/30/74 | FY76: | TOTAL: \$29,272 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Leovy, C. B. | HQ-SL/Fellows, R. F. | 31-Atmos Sci | | |
| | HQ-SL/Brunk, W. E. | | | |

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|----------------------|---------------------------------|----------------------|---|--|
| NSG 2131 | University of Washington | 3758 | Collect and analyze meteor debris from the stratosphere | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 03/01/76-02/28/77 | FY76: \$11,500 | TOTAL: \$11,500 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Hodge, P. W. | ARC/Blanchard, M. B. | 19-Phys Sci, NEC | | |
| | ARC/Farlow, N. H. | | | |

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|----------------------|---------------------------------|----------------------|--------------------------|--|
| NSG 5039 | University of Washington | 3759 | Stratospheric long waves | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 12/01/74-10/31/76 | FY76: \$24,991 | TOTAL: \$54,991 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Leovy, C. B. | GSFC/Eberstein, I. | 31-Atmos Sci | | |
| Webster, P. J. | GSFC/Heath, D. F. | | | |

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|----------------------|---------------------------------|----------------------|-----------------------------------|--|
| NSG 7085 | University of Washington | 3760 | Dynamics of planetary atmospheres | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 07/01/74-10/01/76 | FY76: | TOTAL: \$76,224 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Leovy, C. B. | HQ-SL/Fellows, R. F. | 31-Atmos Sci | | |

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|----------------------|---------------------------------|----------------------|---|--|
| NSG 7173 | University of Washington | 3761 | Application of spectral reflectance of lunar samples to telescopic spectra of unvisited parts of the moon | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 07/01/75-01/31/79 | FY76: \$32,508 | TOTAL: \$32,508 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Adams, J. B. | HQ-SL/Williams, R. J. | 32-Geological Sci | | |
| | HQ-SL/Flinn, E. A. | | | |

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|----------------------|---------------------------------|----------------------|--|--|
| NSG 7174 | University of Washington | 3762 | Visible and near-infrared reflectance spectroscopy | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 07/01/75-01/31/79 | FY76: \$126,648 | TOTAL: \$126,648 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Adams, J. B. | HQ-SL/Williams, R. J. | 32-Geological Sci | | |
| | HQ-SL/Flinn, E. A. | | | |

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|----------------------|---------------------------------|----------------------|---|--|
| NSG 9032 | University of Washington | 3763 | Reflectance spectroscopy of lunar samples | |
| <i>Period</i> | <i>Obligations</i> | | | |
| 07/01/75-01/31/77 | FY76: \$117,430 | TOTAL: \$117,430 | | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> | | |
| Adams, J. D. | JSC/Harris, J. W. | 32-Geological Sci | | |

NASA'S UNIVERSITY PROGRAM
WASHINGTON (Continued)

NAS 8-29725 **Washington State University** **3764**
Solidification of binary alloys exhibiting solid state immiscibility under zero gravity conditions

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/17/73-10/31/75 | FY76: | TOTAL: \$70,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, A. A. | MSFC/Yates, I. C., Jr. | |
| | | 47-Materials Engr |
| Anantatmula, R. P. | MSFC/Lacy, L. L. | |

NSG 7214 **Washington State University** **3765**
Atmospheric measurements of nitrous oxide and the halocarbons

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/76-01/31/77 | FY76: \$99,272 | TOTAL: \$99,272 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Rasmussen, R. A. | HQ-SU/King, J., Jr. | 31-Atmos Sci |
| Pierotti, D. | HQ-SU/Gauntner, D. J. | |

WEST VIRGINIA

NSG 7089 **West Virginia Col. Grad. Studies** **3766**
Economic analysis and NASA technology program planning

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/31/74-08/30/76 | FY76: \$37,543 | TOTAL: \$61,397 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Cobb, W. E. | HQ-RX/Rollins, R. H. | 75-Political Sci |
| | HQ-RX/Mullin, J. P. | |

NAS 3-19725 **West Virginia University** **3767**
Development of a fluidized bed computer model

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 06/23/75-02/13/77 | FY76: | TOTAL: \$73,509 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Wen, C. Y. | LERC/Phillips, B. | 49-Engr, NEC |

NGR 49-001-056 **West Virginia University** **3768**
Analysis of microwave radiometer measurement of a water tank surface

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/20/72-05/15/77 | FY76: | TOTAL: \$81,713 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Balanis, C. A. | LARC/Johnson, J. W. | 45-Elec Engr |
| | LARC/Jones, W. L. | |

WISCONSIN

NGR 50-010-001 **Beloit College** **3769**
Low spectral resolution studies on large space telescope

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/73-02/29/76 | FY76: | TOTAL: \$5,488 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Schroeder, D. J. | GSFC/Sobieski, S. | 11-Astronomy |
| | GSFC/Meese, K. J. | |

NSG 1025 **Marquette University** **3770**
Attitude determination of a high altitude balloon payload system

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/01/74-08/31/75 | FY76: | TOTAL: \$23,200 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nigro, N. J. | LARC/Hinton, D. E. | 21-Mathematics |
| Elkoush, A. F. | | |

NAS 1-14136 **University of Wisconsin - Madison** **3771**
Laser radar for meteorological measurements

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/11/75-09/10/78 | FY76: \$250,000 | TOTAL: \$250,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Weinman, J. A. | LARC/Northam, G. B. | 31-Atmos Sci |
| Parent, R. J. | LARC/Rensberg, E. E. | |
| Roesler, F. L. | | |

NAS 2-7314 **University of Wisconsin - Madison** **3772**
Environmental factors controlling growth

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/24/72-06/30/76 | FY76: \$10,000 | TOTAL: \$64,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Tibbetts, T. W. | ARC/Taketa, S. T. | 51-Biology |

NAS 2-8752 **University of Wisconsin - Madison** **3773**
Development of a method for determination of vitamin D metabolites in blood

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 02/01/75-09/30/76 | FY76: \$6,000 | TOTAL: \$22,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Deluca, H. F. | ARC/Holton, E. M. | 12-Chemistry |
| | ARC/Danellis, J. V. | |

NAS 2-8813 **University of Wisconsin - Madison** **3774**
Design and development of the Pioneer/Venus net flux radiometer

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 05/10/75-08/31/78 | FY76: \$500,000 | TOTAL: \$550,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Suomi, V. E. | ARC/Hall, C. F. | 31-Atmos Sci |
| Sromovsky, L. A. | ARC/Twarowski, R. J. | |

NASA'S UNIVERSITY PROGRAM WISCONSIN (Continued)

NAS 5-20068 **University of Wisconsin - Madison** **3775**
Thermal honeycomb shield concept
Period *Obligations*
04/25/74-03/18/76 FY76: TOTAL: \$23,975
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Dombrowski, R. M. GSFC/Oberright, J. E. 49-Engr, NEC

NAS 5-20974 **University of Wisconsin - Madison** **3776**
Navigation model for ATS satellites
Period *Obligations*
03/18/75-06/30/76 FY76: \$20,000 TOTAL: \$59,790
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. GSFC/Squires, R. K. 13-Physics
Kuhlow, W. W.

NAS 5-21798 **University of Wisconsin - Madison** **3777**
Studies of soundings and imaging measurements from geostationary satellites
Period *Obligations*
08/01/72-11/30/76 FY76: \$41,221 TOTAL: \$296,221
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Soumi, V. E. GSFC/Theon, J. S. 31-Atmos Sci

NAS 5-21965 **University of Wisconsin - Madison** **3778**
Development of an IR temperature sounder for SMS spacecraft
Period *Obligations*
08/01/73-09/30/77 FY76: \$50,000 TOTAL: \$244,024
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. GSFC/Moody, J. C. 31-Atmos Sci
Sromovsky, L. A.

NAS 5-22349 **University of Wisconsin - Madison** **3779**
High resolution spectroscopy for a one meter class UV-optical telescope for spacelab astronomy missions
Period *Obligations*
04/23/75-12/31/76 FY76: \$10,000 TOTAL: \$13,247
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Anderson, C. M. GSFC/Leckrone, D. S. 11-Astronomy

NAS 5-22410 **University of Wisconsin - Madison** **3780**
Reduction and analysis of data from OSO-1 soft X-ray background experiment
Period *Obligations*
06/26/75-06/25/77 FY76: \$200,000 TOTAL: \$300,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Kraushaar, W. L. GSFC/Worrall, W. 31-Atmos Sci

NAS 5-23285 **University of Wisconsin - Madison** **3781**
Operation and data handling requirements for large space telescope
Period *Obligations*
09/07/73-09/30/76 FY76: \$13,866 TOTAL: \$49,589
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Bless, R. C. GSFC/Sobieski, S. 11-Astronomy
GSFC/Meese, K. J.

NAS 5-23296 **University of Wisconsin - Madison** **3782**
Update and improvement of interactive man-computer system
Period *Obligations*
08/13/73-06/30/76 FY76: \$237,587 TOTAL: \$503,853
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

NAS 5-23462 **University of Wisconsin - Madison** **3783**
Global atmospheric research project
Period *Obligations*
06/07/76-09/30/78 FY76: \$40,000 TOTAL: \$40,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Suomi, V. E. GSFC/Greaves, J. R. 31-Atmos Sci

NAS 5-23500 **University of Wisconsin - Madison** **3784**
Continued operation of a biomedical applications
Period *Obligations*
06/21/76-02/25/78 FY76: \$8,000 TOTAL: \$8,000
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Houston, N. GSFC/Friedman, D. S. 53-Other Medical
Renner, J. H.

NAS 8-28733 **University of Wisconsin - Madison** **3785**
Metals-melting and exothermic brazing
Period *Obligations*
05/25/72-01/01/76 FY76: TOTAL: \$64,080
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Heine, R. W. MSFC/Williams, J. R. 47-Materials Engr
Siewert, T. A. MSFC/Hasemeyer, E. A.

NAS 8-29387 **University of Wisconsin - Madison** **3786**
Studies associated with large space telescope working group
Period *Obligations*
07/15/73-07/31/76 FY76: TOTAL: \$3,674
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Code, A. D. MSFC/Odell, C. R. 11-Astronomy
MSFC/Snoddy, W. C.

NASW 2716 **University of Wisconsin - Madison** **3787**
Establishment of a biomedical applications team
Period *Obligations*
07/01/74-06/30/75 FY76: TOTAL: \$110,491
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Unavailable HQ-KT/Zimmerman, R. R. 59-Life Sci, NEC

NASW 2819 **University of Wisconsin - Madison** **3788**
Operation of a biomedical applications team
Period *Obligations*
07/01/75-06/30/76 FY76: \$174,998 TOTAL: \$174,998
Prin. Invest. *NASA Tech. Officer* *CASE Category*
Huston, N. HQ-KT/O' Handley, D. A. 59-Life Sci, NEC
Renner, J. H.

NASA'S UNIVERSITY PROGRAM
WISCONSIN (Continued)

NGL 50-002-013 University of Wisconsin - Madison 3789
 Investigations and studies of ultraviolet stellar spectra and associated instrumentation

| Period | Obligations |
|-------------------|---------------------------------------|
| 05/20/64-03/31/79 | FY76: \$298,000 TOTAL: \$2,266,420 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Code, A. D. | GSFC/Bissell, E. E., Jr. 11-Astronomy |
| | HQ-SA/Roman, N. G. |

NGL 50-002-044 University of Wisconsin - Madison 3790
 Research in cosmic and solar physics

| Period | Obligations |
|-------------------|------------------------------------|
| 10/25/65-03/31/79 | FY76: \$222,500 TOTAL: \$1,807,661 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Kraushaar, W. L. | HQ-SA/Sofia, S. 11-Astronomy |

NGL 50-002-127 University of Wisconsin - Madison 3791
 Multidisciplinary research in space science & engineering

| Period | Obligations |
|-------------------|------------------------------------|
| 12/19/69-07/31/78 | FY76: TOTAL: \$1,175,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Clapp, J. L. | HQ-P/Vitale, J. A. 39-Env Sci, NEC |

NGR 50-002-051 University of Wisconsin - Madison 3792
 Applications of the direct photon absorption techniques for measuring bone-mineral content

| Period | Obligations |
|-------------------|----------------------------------|
| 09/01/66-08/31/76 | FY76: \$40,000 TOTAL: \$519,164 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Cameron, J. R. | ARC/Young, D. R. 52-Clinical Med |
| Mazess, R. B. | |

NGR 50-002-162 University of Wisconsin - Madison 3793
 Solar wind physics

| Period | Obligations |
|-------------------|----------------------------------|
| 01/26/71-12/31/76 | FY76: \$50,000 TOTAL: \$310,619 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Scherb, F. | HQ-ST/Cauffman, D. P. 13-Physics |
| | HQ-ST/Schmerling, E. R. |

NGR 50-002-189 University of Wisconsin - Madison 3794
 Cloud image processing for planetary flybys

| Period | Obligations |
|-------------------|-----------------------------------|
| 01/19/72-12/31/76 | FY76: \$31,000 TOTAL: \$65,297 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Suomi, V. E. | HQ-SL/Fellows, R. F. 31-Atmos Sci |
| | HQ-SL/Brunk, W. E. |

NGR 50-002-191 University of Wisconsin - Madison 3795
 Elimination of microbial flora and its effect on immunity to infection

| Period | Obligations |
|-------------------|-----------------------------------|
| 02/04/72-01/31/77 | FY76: \$23,042 TOTAL: \$170,742 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Balish, E. | ARC/Mandel, A. D. 52-Clinical Med |

NGR 50-002-215 University of Wisconsin - Madison 3796
 Investigation of cloud displacement data in a fluorescent IGG, IGM, and IGA antibody studies

| Period | Obligations |
|-------------------|----------------------------------|
| 03/01/73-09/30/76 | FY76: \$14,000 TOTAL: \$133,634 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Suomi, V. E. | GSFC/Halem, M. 31-Atmos Sci |
| | GSFC/Quirk, W. |

NGR 50-002-223 University of Wisconsin - Madison 3797
 Study of the use and design characteristics of visible and ultraviolet interference spectrometers for the large space telescope

| Period | Obligations |
|-------------------|----------------------------------|
| 10/01/73-02/29/76 | FY76: \$426 TOTAL: \$5,766 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Roesler, F. L. | GSFC/Sobieski, S. 11-Astronomy |
| | GSFC/Meese, K. J. |

NSG 1196 University of Wisconsin - Madison 3798
 Statistical modeling and inference for orientation data

| Period | Obligations |
|----------------------|-------------------------------------|
| 09/01/75-08/31/76 | FY76: TOTAL: \$24,998 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Johnson, R. A. | LARC/Campbell, J. W. 21-Mathematics |
| Bhattacharyya, G. K. | |

NSG 2002 University of Wisconsin - Madison 3799
 Rapid diagnosis of rhinovirus infection by fluorescent IGG, IGM, and IGA

| Period | Obligations |
|-------------------|-----------------------------------|
| 01/15/74-01/14/77 | FY76: \$25,000 TOTAL: \$75,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Dick, E. C. | ARC/Mandel, A. D. 52-Clinical Med |

NSG 2104 University of Wisconsin - Madison 3800
 Viral etiology and epidemiology of respiratory infection in an isolated Antarctic station

| Period | Obligations |
|-------------------|-----------------------------------|
| 09/01/75-08/31/76 | FY76: \$30,000 TOTAL: \$30,000 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Dick, E. | ARC/Mandel, A. D. 52-Clinical Med |

NSG 5100 University of Wisconsin - Madison 3801
 Ultraviolet studies with the Princeton telescope aboard the Copernicus satellite

| Period | Obligations |
|-------------------|------------------------------------|
| 06/01/76-05/31/77 | FY76: \$10,578 TOTAL: \$10,578 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Savage, B. D. | GSFC/Kupperian, J. E. 11-Astronomy |

NSG 7033 University of Wisconsin - Madison 3802
 Investigation of the galactic and interplanetary night sky emission

| Period | Obligations |
|-------------------|-----------------------------------|
| 05/01/74-10/31/75 | FY76: TOTAL: \$32,540 |
| Prin. Invest. | NASA Tech. Officer CASE Category |
| Scherb, F. | HQ-SA/Boggess, N. W. 11-Astronomy |
| Roesler, F. L. | HQ-SA/Calahan, H. D. |

NASA'S UNIVERSITY PROGRAM

WISCONSIN (Continued)

| | | |
|---|--|----------------------|
| NSG 7050 | University of Wisconsin - Madison | 3803 |
| Data analysis of OAO-2 ultraviolet spectrophotometry | | |
| <i>Period</i> | <i>Obligations</i> | |
| 07/01/74-06/30/77 | FY76: \$55,500 | TOTAL: \$362,200 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Code, A. D. | HQ-SA/Roman, N. G. | 11-Astronomy |
| | HO-SA/Rosendhal, J. D. | |

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|--|--|-----------------------|
| NSG 7133 | University of Wisconsin - Madison | 3804 |
| Ultraviolet studies with the Dutch national satellite | | |
| <i>Period</i> | <i>Obligations</i> | |
| 06/01/75-08/31/77 | FY76: | TOTAL: \$8,717 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Savage, B. D. | HQ-SA/Rosendhal, J. D. | 11-Astronomy |

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|--|-----------------------------------|----------------------|
| NSG 7215 | University of Wisconsin - Madison | 3805 |
| Vacuum ultraviolet photon excitation and electron ejection from surfaces | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/76-01/31/77 | FY76: \$40,000 | TOTAL: \$40,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Taylor, J. W. | HQ-SL/Williams, R. J. | 32-Geological Sci |
| | HQ-SL/Flinn, E. A. | |

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|--|------------------------|-------------------------------------|------|
| NGR 50-007-001 | | University of Wisconsin - Milwaukee | 3806 |
| Dynamic response and flow visualization analyses for helicopter rotor blades | | | |
| Period | Obligations | | |
| 12/02/70-01/01/77 | FY76: \$32,980 | TOTAL: \$272,834 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Bratanow, T. | LARC/Young, W. H., Jr. | 41-Aero Engr | |
| | HQ-RP/Ward, J. F. | | |

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|--|---|----------------------|
| NGR 50-009-001 | University of Wisconsin - Parkside | 3807 |
| Identification, distribution and significance of forms on Mars | | |
| <i>Period</i> | <i>Obligations</i> | |
| 00/00/00-05/30/76 | FY76: \$6,008 | TOTAL: \$13,472 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Smith, E. I. | HQ-SL/Dwornik, S. E. | 32-Geological Sci |
| | HQ-SL/Holt, H. E. | |

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|--|--------------------------------------|----------------------|
| NAS 1-13797 | University of Wyoming | 3809 |
| Stratospheric aerosol measurement instrument | | |
| <i>Period</i> | <i>Obligations</i> | |
| 01/29/75-04/28/79 | FY76: \$1,350,000 TOTAL: \$2,100,000 | |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Pepin, I. J. | LARC/Hedgepeth, K. D. | 31 Atmos Sci |
| | LARC/Mauldin, L. E., III | |

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|---|------------------------------|----------------------|
| NAS 1-14373 | University of Wyoming | 3810 |
| Science support for the Nimbus G stratospheric aerosol measurement experiment | | |
| <i>Period</i> | <i>Obligations</i> | |
| 04/02/76-10/31/78 | FY76: \$19,000 | TOTAL: \$19,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Pepin, T. J. | LARC/McCormick, M. P. | 31-Atmos Sci |
| | LARC/McMaster, L. R. | |

| | | | |
|--|---------------------|-----------------------|------|
| NAS 8-32067 | | University of Wyoming | 3811 |
| Aerosol and nucleation research in support of NASA cloud physics experiment in space | | | |
| Period | Obligations | | |
| 05/10/76-12/31/77 | FY76: \$29,894 | TOTAL: \$29,894 | |
| Prin. Invest. | NASA Tech. Officer | CASE Category | |
| Vali, G. | MSFC/Schrick, B. J. | 31-Atmos Sci | |

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|--|------------------------------|----------------------|
| NGR 51-001-035 | University of Wyoming | 3812 |
| Search for relativistic magnetic charges in cosmic rays | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/03/71-05/26/76 | FY76: \$1,500 | TOTAL: \$131,486 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Tompkins, D. R., Jr. | HQ-SA/Sofia, S. | 13-Physics |

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|--|------------------------------|------------------------|
| NSG 7207 | University of Wyoming | 3813 |
| Theoretical investigation of the equilibrium distribution of space shuttle alumina aerosol effluent | | |
| <i>Period</i> | <i>Obligations</i> | |
| 02/01/76-01/31/77 | FY76: \$65,091 | TOTAL: \$65,091 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Hofmann, D. J. | HQ-SU/King, J., Jr. | 31-Atmos Sci |
| | HQ-SU/Reed, E. F. | |

WYOMING

| | | |
|--|------------------------------|----------------------|
| NAS 1-13213 | University of Wyoming | 3808 |
| Stratospheric aerosol measurements for Apollo-Soyuz test project | | |
| <i>Period</i> | <i>Obligations</i> | |
| 05/02/74-11/01/76 | FY76: \$25,000 | TOTAL: \$342,127 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Pepin, T. J. | LARC/Crumbley, K. H. | 31-Atmos Sci |
| | LARC/Mauldin, L. E., III | |

CANADA

| | | |
|---|------------------------------|----------------------|
| NGR 52-026-039 | University of Toronto | 3814 |
| Experimental determination of ultimate strength criteria for design of composite structures | | |
| <i>Period</i> | <i>Obligations</i> | |
| 03/08/73-06/30/75 | FY76: | TOTAL: \$13,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Tennyson, R. C. | LARC/Foye, R. L. | 41-Aero Engr |

NASA'S UNIVERSITY PROGRAM CANADA (Continued)

NSG 7079 **University of Toronto** **3815**
Research on motion sickness

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/74-04/31/76 | FY76: | TOTAL: \$10,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Johnson, W. H. | HQ-SB/Halstead, T. W. | 53-Other Medical |
| | HQ-SB/Vinograd, S. P. | |

NSG 7219 **University of Toronto** **3816**
Experimental evaluation of the tensor polynomial failure criterion for designing composite materials

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/01/75-08/31/77 | FY76: \$16,356 | TOTAL: \$16,356 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Tennyson, R. C. | LARC/Foye, R. L. | 47-Materials Engr |
| | LARC/Pride, R. A. | |

NGR 52-134-005 **York University** **3817**
Studies of production and reaction processes of O (1D2) of interest in the earth's atmosphere

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 04/26/73-03/31/77 | FY76: \$40,000 | TOTAL: \$119,760 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Schiff, H. I. | LERC/Baker, C. E. | 31-Atmos Sci |

CHILE

NAS 5-1925 **University of Chile** **3818**
Maintenance & operation of minitrack facilities

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 09/21/62-09/30/76 | FY76: \$3,405,100 | TOTAL: \$22,409,650 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Danyau, C. R. | GSFC/Lafleur, W. | 99-Multi-Discip |
| | GSFC/Force, C. | |

GREAT BRITAIN

NSG 7172 **University of Southampton** **3819**
Self-streamlining of the test section of a transonic wind tunnel

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/75-09/30/76 | FY76: \$16,086 | TOTAL: \$16,086 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Goodyer, M. J. | LARC/Kilgore, R. A. | 41-Aero Engr |
| | LARC/Ray, E. J. | |

ISRAEL

NGR 52-012-008 **Israel Institute of Technology** **3820**
Automated wing structural design

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 10/01/73-06/01/76 | FY76: | TOTAL: \$16,881 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Haftka, R. T. | LARC/Dixon, S. C. | 41-Aero Engr |
| | LARC/Starnes, J. H., Jr. | |

NSG 7072 **Israel Institute of Technology** **3821**
Flutter suppression and gust alleviation using active controls

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/01/74-09/30/77 | FY76: | TOTAL: \$26,512 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Nissim, E. | LARC/Abel, I. | 41-Aero Engr |
| | LARC/Bland, S. R. | |

NSG 7083 **Israel Institute of Technology** **3822**
Inelastic behavior of advanced composite materials (boron and graphite epoxy)

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/01/74-04/30/77 | FY76: | TOTAL: \$20,785 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Weller, T. | LARC/Bush, H. G. | 41-Aero Engr |

ITALY

NASW 1761 **University of Rome** **3823**
Launching and associated activities at San Marco range

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 08/21/70-12/31/75 | FY76: \$8,010 | TOTAL: \$3,222,748 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | HQ-MV/Goozh, P. E. | 49-Engr, NEC |

NEW ZEALAND

NSG 7192 **University of Canterbury** **3824**
Study of the propagation of sound in nonuniform duct

| <i>Period</i> | <i>Obligations</i> | |
|----------------------|---------------------------|----------------------|
| 07/01/75-06/30/77 | FY76: \$29,600 | TOTAL: \$29,600 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Eversman, W. | LERC/Rice, E. J. | 46-Mech Engr |

NASA'S UNIVERSITY PROGRAM

PERU

PERU

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|-------------------------------|---------------------------|----------------------|
| NASW 7 | University of Peru | 3825 |
| Operation of tracking station | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/01/68-06/01/79 | FY76: \$33,000 | TOTAL: \$3,300,512 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Unavailable | GSFC/Christie, C. J. | 49-Engr, NEC |

SWEDEN

| | | |
|----------------------|---------------------------|----------------------|
| NGR 52-028-004 | Uppsala University | 3826 |
| Inner ear research | | |
| <i>Period</i> | <i>Obligations</i> | |
| 12/01/72-07/01/76 | FY76: | TOTAL: \$45,000 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Engstrom, H. | ARC/Kimball, W. L. | 53-Other Medical |

YUGOSLAVIA

| | | |
|--|---------------------------|----------------------|
| NSG 7163 | University of Split | 3827 |
| Synthesis of time-dependent arc impedance of a large capacitor discharge circuit | | |
| <i>Period</i> | <i>Obligations</i> | |
| 09/01/75-08/31/76 | FY76: \$10,654 | TOTAL: \$10,654 |
| <i>Prin. Invest.</i> | <i>NASA Tech. Officer</i> | <i>CASE Category</i> |
| Slapnicar, P. I. | ARC/Dannenberg, R. E. | 13-Physics |

NASA'S UNIVERSITY PROGRAM

APPENDIX A

CROSS INDEX BY GRANT/CONTRACT NUMBER

Entries are arranged alphanumerically. Grants are identifiable by prefix letters NGF, NGL, NGR, NGT and NSG. All other prefixes denote contracts.

| GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. |
|------------------------------|------------|------------------------------|------------|------------------------------|------------|
| C-80166C | 1531 | NAS 1-14034 | 3582 | NAS 2-8706 | 2901 |
| H-23602B | 1958 | NAS 1-14124 | 3131 | NAS 2-8752 | 3773 |
| NAS 1-6860 | 2543 | NAS 1-14136 | 3771 | NAS 2-8802 | 3522 |
| NAS 1-9434 | 3604 | NAS 1-14160 | 3478 | NAS 2-8808 | 1534 |
| NAS 1-9680 | 3293 | NAS 1-14185 | 3404 | NAS 2-8812 | 2617 |
| NAS 1-9682 | 1332 | NAS 1-14193 | 3607 | NAS 2-8813 | 3774 |
| NAS 1-9683 | 2899 | NAS 1-14276 | 1263 | NAS 2-8816 | 1758 |
| NAS 1-9684 | 2414 | NAS 1-14313 | 1855 | NAS 2-8818 | 1104 |
| NAS 1-9685 | 3444 | NAS 1-14332 | 1101 | NAS 2-8883 | 2224 |
| NAS 1-9691 | 2415 | NAS 1-14341 | 3736 | NAS 2-8898 | 1336 |
| NAS 1-9692 | 1333 | NAS 1-14351 | 1960 | NAS 2-8925 | 1269 |
| NAS 1-9693 | 1906 | NAS 1-14373 | 3810 | NAS 2-8954 | 3110 |
| NAS 1-9694 | 3735 | NAS 1-14393 | 3204 | NAS 2-8977 | 2419 |
| NAS 1-9697 | 2614 | NAS 1-14394 | 2549 | NAS 2-8983 | 1287 |
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| NAS 1-9701 | 1334 | NAS 1-14507 | 3593 | NAS 2-8992 | 2551 |
| NAS 1-9702 | 2416 | NAS 2-6057 | 2550 | NAS 2-9002 | 1337 |
| NAS 1-9703 | 1186 | NAS 2-6265 | 1102 | NAS 2-9072 | 3445 |
| NAS 1-9705 | 2750 | NAS 2-6551 | 2051 | NAS 2-9083 | 1338 |
| NAS 1-10210 | 3662 | NAS 2-6552 | 1594 | NAS 2-9126 | 2552 |
| NAS 1-10492 | 2379 | NAS 2-6553 | 2168 | NAS 2-9127 | 2380 |
| NAS 1-10493 | 3004 | NAS 2-6556 | 1888 | NAS 2-9128 | 1535 |
| NAS 1-10646 | 3689 | NAS 2-6558 | 1703 | NAS 2-9129 | 2534 |
| NAS 1-11676 | 2615 | NAS 2-6615 | 1722 | NAS 2-9130 | 2553 |
| NAS 1-11707 | 3605 | NAS 2-6706 | 1335 | NAS 2-9131 | 1536 |
| NAS 1-11854 | 1271 | NAS 2-7059 | 1664 | NAS 2-9132 | 2420 |
| NAS 1-11855 | 2814 | NAS 2-7251 | 1532 | NAS 2-9151 | 2421 |
| NAS 1-11871 | 3203 | NAS 2-7262 | 2417 | NAS 2-9175 | 2019 |
| NAS 1-11958 | 3583 | NAS 2-7273 | 3166 | NAS 3-14336 | 1339 |
| NAS 1-12106 | 1721 | NAS 2-7314 | 3772 | NAS 3-17534 | 2422 |
| NAS 1-12209 | 1834 | NAS 2-7350 | 2752 | NAS 3-17826 | 3151 |
| NAS 1-12304 | 1830 | NAS 2-7358 | 3551 | NAS 3-17827 | 1961 |
| NAS 1-12311 | 1187 | NAS 2-7613 | 2706 | NAS 3-17855 | 3227 |
| NAS 1-12445 | 3592 | NAS 2-7620 | 2418 | NAS 3-17857 | 1705 |
| NAS 1-12705 | 3557 | NAS 2-7730 | 3263 | NAS 3-18010 | 2113 |
| NAS 1-12754 | 3663 | NAS 2-7785 | 1533 | NAS 3-18522 | 2815 |
| NAS 1-12976 | 2186 | NAS 2-7839 | 1103 | NAS 3-18547 | 3105 |
| NAS 1-13129 | 2167 | NAS 2-7846 | 2900 | NAS 3-18553 | 3692 |
| NAS 1-13175 | 3690 | NAS 2-7850 | 3135 | NAS 3-18901 | 1962 |
| NAS 1-13213 | 3808 | NAS 2-7927 | 2112 | NAS 3-18929 | 3197 |
| NAS 1-13422 | 1959 | NAS 2-7963 | 2941 | NAS 3-19431 | 2679 |
| NAS 1-13423 | 3580 | NAS 2-7969 | 1704 | NAS 3-19434 | 2816 |
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| NAS 1-13656 | 1262 | NAS 2-8496 | 2802 | NAS 3-19700 | 1963 |
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| NAS 1-13797 | 3809 | NAS 2-8578 | 3163 | NAS 3-19850 | 1512 |
| NAS 1-13820 | 3606 | NAS 2-8590 | 2017 | NAS 3-20051 | 2555 |
| NAS 1-13884 | 3691 | NAS 2-8676 | 3381 | NAS 3-20087 | 2143 |
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| NAS 5-1925 | 3818 | NAS 5-20826 | 2689 | NAS 5-22375 | 1598 |
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| NAS 5-3949 | 2381 | NAS 5-20834 | 2301 | NAS 5-22383 | 1894 |
| NAS 5-9317 | 3382 | NAS 5-20837 | 2623 | NAS 5-22384 | 2190 |
| NAS 5-10102 | 1340 | NAS 5-20838 | 1444 | NAS 5-22392 | 2847 |
| NAS 5-11062 | 2423 | NAS 5-20839 | 2560 | NAS 5-22408 | 2866 |
| NAS 5-11063 | 2299 | NAS 5-20841 | 1823 | NAS 5-22409 | 1762 |
| NAS 5-11064 | 2169 | NAS 5-20865 | 3210 | NAS 5-22410 | 3780 |
| NAS 5-11066 | 1189 | NAS 5-20871 | 1341 | NAS 5-22417 | 1935 |
| NAS 5-11067 | 2052 | NAS 5-20883 | 2242 | NAS 5-22422 | 1967 |
| NAS 5-11080 | 1595 | NAS 5-20884 | 2738 | NAS 5-22440 | 1763 |
| NAS 5-11081 | 1596 | NAS 5-20885 | 3132 | NAS 5-22441 | 2562 |
| NAS 5-11082 | 2424 | NAS 5-20914 | 1760 | NAS 5-22475 | 3046 |
| NAS 5-11167 | 2170 | NAS 5-20915 | 1084 | NAS 5-22482 | 2756 |
| NAS 5-11173 | 2619 | NAS 5-20916 | 2796 | NAS 5-22485 | 2427 |
| NAS 5-11265 | 2171 | NAS 5-20922 | 2115 | NAS 5-22495 | 3350 |
| NAS 5-11276 | 2736 | NAS 5-20939 | 2561 | NAS 5-22529 | 2841 |
| NAS 5-11279 | 2172 | NAS 5-20943 | 2188 | NAS 5-22534 | 3406 |
| NAS 5-11310 | 2620 | NAS 5-20946 | 3479 | NAS 5-22537 | 2302 |
| NAS 5-11376 | 2556 | NAS 5-20948 | 1761 | NAS 5-22539 | 1817 |
| NAS 5-11380 | 2557 | NAS 5-20955 | 3558 | NAS 5-22555 | 1192 |
| NAS 5-11405 | 1759 | NAS 5-20956 | 1965 | NAS 5-22556 | 1599 |
| NAS 5-11406 | 3523 | NAS 5-20959 | 1085 | NAS 5-22575 | 3113 |
| NAS 5-11407 | 3524 | NAS 5-20961 | 2844 | NAS 5-22576 | 3481 |
| NAS 5-11415 | 2278 | NAS 5-20967 | 2054 | NAS 5-22577 | 3694 |
| NAS 5-11431 | 2173 | NAS 5-20969 | 1445 | NAS 5-22578 | 1907 |
| NAS 5-11438 | 2621 | NAS 5-20974 | 3776 | NAS 5-22581 | 2303 |
| NAS 5-11450 | 2425 | NAS 5-20982 | 3315 | NAS 5-22586 | 2903 |
| NAS 5-11674 | 1538 | NAS 5-20983 | 1831 | NAS 5-22587 | 2563 |
| NAS 5-11687 | 2622 | NAS 5-20987 | 1342 | NAS 5-22599 | 1105 |
| NAS 5-11694 | 2737 | NAS 5-20995 | 1446 | NAS 5-22816 | 2116 |
| NAS 5-20023 | 2863 | NAS 5-20999 | 3664 | NAS 5-22822 | 3229 |
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| NAS 5-20064 | 1539 | NAS 5-21798 | 3777 | NAS 5-22840 | 3407 |
| NAS 5-20068 | 3775 | NAS 5-21833 | 1086 | NAS 5-22861 | 2564 |
| NAS 5-20079 | 1442 | NAS 5-21871 | 2535 | NAS 5-22875 | 2565 |
| NAS 5-20080 | 1443 | NAS 5-21960 | 1343 | NAS 5-22878 | 2305 |
| NAS 5-20093 | 2174 | NAS 5-21965 | 3778 | NAS 5-22890 | 2867 |
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| NAS 5-20521 | 3111 | NAS 5-21982 | 3480 | NAS 5-22908 | 1916 |
| NAS 5-20539 | 2176 | NAS 5-21983 | 3112 | NAS 5-22915 | 2428 |
| NAS 5-20622 | 2558 | NAS 5-21984 | 3693 | NAS 5-22929 | 2429 |
| NAS 5-20672 | 3329 | NAS 5-22277 | 3027 | NAS 5-22936 | 2868 |
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| NAS 5-20680 | 2707 | NAS 5-22307 | 1447 | NAS 5-22946 | 3205 |
| NAS 5-20681 | 2803 | NAS 5-22311 | 2864 | NAS 5-22959 | 1724 |
| NAS 5-20705 | 2902 | NAS 5-22319 | 3180 | NAS 5-22960 | 1765 |
| NAS 5-20721 | 1191 | NAS 5-22325 | 2189 | NAS 5-22963 | 1936 |
| NAS 5-20764 | 2382 | NAS 5-22341 | 2865 | NAS 5-22964 | 1513 |
| NAS 5-20793 | 2114 | NAS 5-22343 | 2383 | NAS 5-22965 | 1194 |
| NAS 5-20796 | 3405 | NAS 5-22344 | 1966 | NAS 5-22966 | 3408 |
| NAS 5-20803 | 1083 | NAS 5-22346 | 3665 | NAS 5-22981 | 1804 |
| NAS 5-20806 | 2559 | NAS 5-22349 | 3779 | NAS 5-22987 | 2101 |

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| NAS 5-23006 | 2566 | NAS 6-2602 | 3231 | NAS 8-29583 | 1726 |
| NAS 5-23125 | 2723 | NAS 6-2613 | 2117 | NAS 8-29584 | 3332 |
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| NAS 5-23199 | 2385 | NAS 6-2695 | 2118 | NAS 8-29764 | 3413 |
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| NAS 5-23236 | 2904 | NAS 6-2706 | 2280 | NAS 8-29847 | 1707 |
| NAS 5-23237 | 2306 | NAS 6-2707 | 3591 | NAS 8-29852 | 1017 |
| NAS 5-23249 | 1273 | NAS 6-2726 | 3232 | NAS 8-29856 | 1018 |
| NAS 5-23267 | 2568 | NAS 8-20172 | 1069 | NAS 8-29881 | 1019 |
| NAS 5-23274 | 1766 | NAS 8-20247 | 1917 | NAS 8-29936 | 1074 |
| NAS 5-23284 | 2758 | NAS 8-20765 | 1015 | NAS 8-29937 | 1075 |
| NAS 5-23285 | 3781 | NAS 8-21140 | 3233 | NAS 8-30246 | 1969 |
| NAS 5-23287 | 1195 | NAS 8-24908 | 1041 | NAS 8-30247 | 1049 |
| NAS 5-23296 | 3782 | NAS 8-24953 | 1042 | NAS 8-30248 | 1020 |
| NAS 5-23315 | 1196 | NAS 8-25562 | 1070 | NAS 8-30250 | 1727 |
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| NAS 5-23346 | 1767 | NAS 8-26601 | 3074 | NAS 8-30253 | 3561 |
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| NAS 5-23386 | 2759 | NAS 8-26758 | 1665 | NAS 8-30479 | 1076 |
| NAS 5-23387 | 2760 | NAS 8-26930 | 1016 | NAS 8-30534 | 1970 |
| NAS 5-23457 | 2307 | NAS 8-27296 | 3330 | NAS 8-30537 | 2434 |
| NAS 5-23458 | 3409 | NAS 8-27334 | 3234 | NAS 8-30561 | 1012 |
| NAS 5-23462 | 3783 | NAS 8-27799 | 1674 | NAS 8-30563 | 1050 |
| NAS 5-23470 | 3314 | NAS 8-27809 | 1043 | NAS 8-30576 | 2435 |
| NAS 5-23479 | 3264 | NAS 8-27972 | 2431 | NAS 8-30578 | 2973 |
| NAS 5-23481 | 1600 | NAS 8-27974 | 1602 | NAS 8-30579 | 1544 |
| NAS 5-23493 | 2739 | NAS 8-27975 | 2432 | NAS 8-30617 | 1971 |
| NAS 5-23494 | 2387 | NAS 8-27976 | 2708 | NAS 8-30618 | 2660 |
| NAS 5-23496 | 3666 | NAS 8-27977 | 2624 | NAS 8-30619 | 2009 |
| NAS 5-23500 | 3784 | NAS 8-27978 | 1198 | NAS 8-30620 | 2244 |
| NAS 5-23520 | 2541 | NAS 8-28015 | 1603 | NAS 8-30623 | 2661 |
| NAS 5-23522 | 1344 | NAS 8-28058 | 1011 | NAS 8-30624 | 1077 |
| NAS 5-23557 | 2613 | NAS 8-28097 | 1044 | NAS 8-30625 | 2569 |
| NAS 5-23558 | 2293 | NAS 8-28098 | 1071 | NAS 8-30653 | 1972 |
| NAS 5-23571 | 2001 | NAS 8-28248 | 1045 | NAS 8-30654 | 1021 |
| NAS 5-23576 | 2761 | NAS 8-28304 | 1046 | NAS 8-30656 | 3352 |
| NAS 5-23577 | 1768 | NAS 8-28307 | 2972 | NAS 8-30657 | 1973 |
| NAS 5-23603 | 1968 | NAS 8-28310 | 1542 | NAS 8-30752 | 2436 |
| NAS 5-23615 | 1197 | NAS 8-28358 | 1543 | NAS 8-30753 | 2872 |
| NAS 5-23618 | 1345 | NAS 8-28590 | 1725 | NAS 8-30772 | 1051 |
| NAS 5-23623 | 2869 | NAS 8-28654 | 3211 | NAS 8-30774 | 1052 |
| NAS 5-23624 | 2430 | NAS 8-28660 | 3309 | NAS 8-30880 | 1013 |
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| NAS 6-2439 | 2848 | NAS 8-29100 | 1072 | NAS 8-30885 | 1053 |
| NAS 6-2454 | 3482 | NAS 8-29271 | 3331 | NAS 8-30886 | 1078 |
| NAS 6-2455 | 2870 | NAS 8-29286 | 3043 | NAS 8-30887 | 3192 |
| NAS 6-2456 | 3149 | NAS 8-29313 | 1199 | NAS 8-30919 | 1974 |
| NAS 6-2463 | 1540 | NAS 8-29316 | 1047 | NAS 8-31006 | 2225 |
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| NAS 6-2498 | 3559 | NAS 8-29494 | 1073 | NAS 8-31145 | 1604 |
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| NAS 8-31170 | 1055 | NAS 8-31702 | 3265 | NAS 9-12434 | 3417 |
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| NAS 8-31172 | 1948 | NAS 8-31705 | 2974 | NAS 9-12485 | 2441 |
| NAS 8-31174 | 1057 | NAS 8-31706 | 3212 | NAS 9-12560 | 2626 |
| NAS 8-31189 | 3320 | NAS 8-31707 | 3213 | NAS 9-12568 | 3485 |
| NAS 8-31190 | 1022 | NAS 8-31708 | 2859 | NAS 9-12770 | 3029 |
| NAS 8-31192 | 1109 | NAS 8-31709 | 2860 | NAS 9-12776 | 3388 |
| NAS 8-31193 | 1975 | NAS 8-31710 | 1545 | NAS 9-12777 | 3448 |
| NAS 8-31194 | 1058 | NAS 8-31711 | 2843 | NAS 9-12912 | 3389 |
| NAS 8-31195 | 3116 | NAS 8-31718 | 3335 | NAS 9-13029 | 3739 |
| NAS 8-31196 | 1110 | NAS 8-31729 | 1062 | NAS 9-13102 | 3544 |
| NAS 8-31223 | 1023 | NAS 8-31731 | 1014 | NAS 9-13196 | 1182 |
| NAS 8-31233 | 2233 | NAS 8-31767 | 2691 | NAS 9-13262 | 3449 |
| NAS 8-31234 | 3414 | NAS 8-31768 | 1063 | NAS 9-13313 | 2177 |
| NAS 8-31235 | 3206 | NAS 8-31769 | 1347 | NAS 9-13380 | 2119 |
| NAS 8-31237 | 1728 | NAS 8-31770 | 2664 | NAS 9-13452 | 3358 |
| NAS 8-31252 | 3325 | NAS 8-31771 | 1176 | NAS 9-13512 | 3527 |
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| NAS 8-31293 | 1059 | NAS 8-31773 | 3416 | NAS 9-13589 | 1514 |
| NAS 8-31294 | 3150 | NAS 8-31775 | 3525 | NAS 9-13642 | 2849 |
| NAS 8-31321 | 1060 | NAS 8-31776 | 2729 | NAS 9-13669 | 3304 |
| NAS 8-31332 | 3415 | NAS 8-31780 | 2732 | NAS 9-13680 | 3486 |
| NAS 8-31333 | 3173 | NAS 8-31801 | 1087 | NAS 9-13737 | 3360 |
| NAS 8-31343 | 1079 | NAS 8-31802 | 3079 | NAS 9-13743 | 3740 |
| NAS 8-31344 | 1976 | NAS 8-31839 | 1605 | NAS 9-13803 | 3273 |
| NAS 8-31345 | 1061 | NAS 8-31849 | 2692 | NAS 9-13844 | 1035 |
| NAS 8-31346 | 1449 | NAS 8-31850 | 1977 | NAS 9-13878 | 3321 |
| NAS 8-31347 | 1729 | NAS 8-31895 | 1064 | NAS 9-13894 | 3418 |
| NAS 8-31350 | 2438 | NAS 8-31897 | 2724 | NAS 9-13904 | 3419 |
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| NAS 8-31537 | 1111 | NAS 9-5886 | 2308 | NAS 9-14396 | 1667 |
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| NAS 9-14692 | 1113 | NASW 2787 | 2442 | NCA 2-50605 | 1463 |
| NAS 9-14696 | 1515 | NASW 2793 | 3072 | NCA 2-50606 | 1464 |
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| NAS 9-14860 | 3181 | NASW 2928 | 2806 | NCA 2-180505 | 1520 |
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| NSG 1245 | 3647 | NSG 1303 | 2951 | NSG 2071 | 1424 |
| NSG 1246 | 1871 | NSG 1304 | 1833 | NSG 2072 | 1425 |
| NSG 1247 | 3648 | NSG 1305 | 2855 | NSG 2074 | 3104 |
| NSG 1248 | 2965 | NSG 1306 | 2594 | NSG 2075 | 1698 |
| NSG 1249 | 2675 | NSG 1307 | 1989 | NSG 2076 | 2500 |
| NSG 1250 | 3722 | NSG 1308 | 3251 | NSG 2077 | 3477 |
| NSG 1251 | 1872 | NSG 1309 | 3655 | NSG 2078 | 2927 |
| NSG 1252 | 3649 | NSG 1310 | 2207 | NSG 2080 | 2991 |
| NSG 1253 | 2782 | NSG 1311 | 3656 | NSG 2084 | 1496 |
| NSG 1254 | 3723 | NSG 1314 | 2793 | NSG 2085 | 1426 |
| NSG 1255 | 3724 | NSG 1315 | 3657 | NSG 2086 | 1699 |
| NSG 1256 | 3683 | NSG 1318 | 3658 | NSG 2088 | 2842 |
| NSG 1257 | 1987 | NSG 1321 | 3659 | NSG 2090 | 1327 |
| NSG 1258 | 2142 | NSG 2002 | 3799 | NSG 2091 | 2163 |
| NSG 1259 | 3650 | NSG 2003 | 1493 | NSG 2092 | 1427 |
| NSG 1260 | 3651 | NSG 2005 | 1268 | NSG 2093 | 1328 |
| NSG 1261 | 3346 | NSG 2006 | 3402 | NSG 2094 | 1579 |

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APPENDIX A CROSS INDEX BY GRANT/CONTRACT NUMBER

| GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. |
|------------------------------|------------|------------------------------|------------|------------------------------|------------|
| NSG 2095 | 2501 | NSG 2160 | 1502 | NSG 3057 | 2984 |
| NSG 2098 | 2298 | NSG 2161 | 1433 | NSG 3058 | 3093 |
| NSG 2099 | 2089 | NSG 2162 | 3129 | NSG 3059 | 2952 |
| NSG 2100 | 1428 | NSG 2163 | 1255 | NSG 3060 | 1752 |
| NSG 2101 | 3511 | NSG 2164 | 1673 | NSG 3061 | 2508 |
| NSG 2102 | 1429 | NSG 3001 | 2348 | NSG 3062 | 3094 |
| NSG 2103 | 1902 | NSG 3002 | 3288 | NSG 3063 | 3155 |
| NSG 2104 | 3800 | NSG 3003 | 1082 | NSG 3064 | 2509 |
| NSG 2105 | 1329 | NSG 3004 | 2654 | NSG 3065 | 1266 |
| NSG 2106 | 1700 | NSG 3005 | 3130 | NSG 3066 | 3145 |
| NSG 2108 | 2784 | NSG 3007 | 2983 | NSG 3067 | 3162 |
| NSG 2109 | 2347 | NSG 3008 | 2091 | NSG 3068 | 3556 |
| NSG 2110 | 1497 | NSG 3009 | 3089 | NSG 3069 | 2812 |
| NSG 2111 | 1330 | NSG 3010 | 3289 | NSG 3070 | 2147 |
| NSG 2112 | 1151 | NSG 3011 | 1750 | NSG 3071 | 2137 |
| NSG 2113 | 2597 | NSG 3012 | 3253 | NSG 3072 | 2987 |
| NSG 2114 | 2785 | NSG 3013 | 2232 | NSG 3073 | 3731 |
| NSG 2115 | 1580 | NSG 3014 | 2610 | NSG 3074 | 3095 |
| NSG 2116 | 3286 | NSG 3015 | 1991 | NSG 3075 | 1096 |
| NSG 2117 | 3287 | NSG 3016 | 3254 | NSG 3076 | 2510 |
| NSG 2118 | 2502 | NSG 3017 | 2505 | NSG 3077 | 3096 |
| NSG 2119 | 2090 | NSG 3018 | 1929 | NSG 3078 | 3097 |
| NSG 2120 | 1928 | NSG 3019 | 2928 | NSG 3079 | 2511 |
| NSG 2121 | 1430 | NSG 3022 | 3142 | NSG 3080 | 2929 |
| NSG 2122 | 3252 | NSG 3023 | 3202 | NSG 3081 | 2612 |
| NSG 2123 | 3438 | NSG 3024 | 3143 | NSG 3082 | 1581 |
| NSG 2125 | 1498 | NSG 3025 | 1718 | NSG 3084 | 3156 |
| NSG 2126 | 1792 | NSG 3026 | 3106 | NSG 3085 | 3098 |
| NSG 2127 | 1499 | NSG 3027 | 3090 | NSG 3086 | 1753 |
| NSG 2128 | 1793 | NSG 3028 | 1503 | NSG 3087 | 2209 |
| NSG 2129 | 2503 | NSG 3029 | 2136 | NSG 3088 | 2512 |
| NSG 2130 | 1331 | NSG 3030 | 2034 | NSG 3089 | 3512 |
| NSG 2131 | 3758 | NSG 3031 | 3255 | NSG 3090 | 3208 |
| NSG 2132 | 1431 | NSG 3032 | 3256 | NSG 3091 | 3146 |
| NSG 2133 | 1500 | NSG 3033 | 2166 | NSG 3092 | 2813 |
| NSG 2134 | 2221 | NSG 3034 | 1634 | NSG 3093 | 2513 |
| NSG 2135 | 2134 | NSG 3035 | 2611 | NSG 3094 | 2641 |
| NSG 2137 | 3443 | NSG 3036 | 1992 | NSG 3095 | 2992 |
| NSG 2138 | 1274 | NSG 3037 | 2145 | NSG 3096 | 1950 |
| NSG 2139 | 2264 | NSG 3038 | 1751 | NSG 3097 | 3257 |
| NSG 2140 | 2730 | NSG 3039 | 2048 | NSG 3098 | 2094 |
| NSG 2141 | 1432 | NSG 3040 | 3091 | NSG 3099 | 3157 |
| NSG 2142 | 2504 | NSG 3041 | 2640 | NSG 3100 | 2861 |
| NSG 2143 | 1953 | NSG 3042 | 2049 | NSG 3101 | 2548 |
| NSG 2144 | 2407 | NSG 3043 | 2092 | NSG 3102 | 2514 |
| NSG 2145 | 2208 | NSG 3044 | 2506 | NSG 3103 | 1637 |
| NSG 2147 | 2967 | NSG 3045 | 3144 | NSG 3105 | 2138 |
| NSG 2148 | 2792 | NSG 3046 | 2507 | NSG 3106 | 1994 |
| NSG 2149 | 2047 | NSG 3047 | 1635 | NSG 3108 | 2968 |
| NSG 2150 | 2164 | NSG 3048 | 2146 | NSG 3109 | 1032 |
| NSG 2151 | 1501 | NSG 3049 | 2265 | NSG 3111 | 2677 |
| NSG 2152 | 2165 | NSG 3050 | 2888 | NSG 3113 | 2704 |
| NSG 2153 | 1701 | NSG 3051 | 3018 | NSG 3115 | 3099 |
| NSG 2154 | 1233 | NSG 3052 | 1993 | NSG 4001 | 1582 |
| NSG 2155 | 1820 | NSG 3053 | 3092 | NSG 4002 | 1434 |
| NSG 2156 | 2532 | NSG 3054 | 3179 | NSG 4003 | 2139 |
| NSG 2158 | 2135 | NSG 3055 | 1636 | NSG 4004 | 2210 |
| NSG 2159 | 1270 | NSG 3056 | 2093 | NSG 4005 | 3223 |

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| GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. |
|------------------------------|------------|------------------------------|------------|------------------------------|------------|
| NSG 4006 | 2211 | NSG 5058 | 1234 | NSG 5119 | 2291 |
| NSG 4007 | 2212 | NSG 5059 | 2354 | NSG 5120 | 3056 |
| NSG 4008 | 2213 | NSG 5060 | 2931 | NSG 5121 | 2360 |
| NSG 4009 | 2214 | NSG 5061 | 1930 | NSG 6001 | 2361 |
| NSG 4010 | 3224 | NSG 5062 | 2355 | NSG 6002 | 3661 |
| NSG 5001 | 1152 | NSG 5063 | 2786 | NSG 6003 | 1846 |
| NSG 5002 | 3347 | NSG 5064 | 3267 | NSG 6004 | 3258 |
| NSG 5003 | 1853 | NSG 5065 | 2287 | NSG 6005 | 2643 |
| NSG 5004 | 1813 | NSG 5066 | 1841 | NSG 6006 | 2370 |
| NSG 5005 | 3513 | NSG 5067 | 2288 | NSG 6007 | 3209 |
| NSG 5006 | 3158 | NSG 5068 | 2073 | NSG 6008 | 3472 |
| NSG 5008 | 3226 | NSG 5069 | 1814 | NSG 6009 | 2644 |
| NSG 5009 | 2272 | NSG 5070 | 1584 | NSG 6010 | 2362 |
| NSG 5010 | 2140 | NSG 5071 | 1890 | NSG 6011 | 3290 |
| NSG 5011 | 1754 | NSG 5072 | 2889 | NSG 7001 | 1639 |
| NSG 5012 | 1995 | NSG 5073 | 1755 | NSG 7002 | 1585 |
| NSG 5013 | 2856 | NSG 5074 | 2296 | NSG 7003 | 3021 |
| NSG 5014 | 2734 | NSG 5075 | 1821 | NSG 7004 | 2601 |
| NSG 5015 | 3019 | NSG 5076 | 2515 | NSG 7005 | 2645 |
| NSG 5016 | 1888 | NSG 5077 | 3031 | NSG 7010 | 2518 |
| NSG 5017 | 2349 | NSG 5078 | 2289 | NSG 7011 | 1157 |
| NSG 5018 | 2988 | NSG 5079 | 2890 | NSG 7014 | 1158 |
| NSG 5019 | 1854 | NSG 5080 | 2891 | NSG 7015 | 3395 |
| NSG 5020 | 3051 | NSG 5081 | 1891 | NSG 7016 | 2716 |
| NSG 5021 | 1889 | NSG 5082 | 1996 | NSG 7017 | 2363 |
| NSG 5022 | 1153 | NSG 5083 | 2356 | NSG 7018 | 2409 |
| NSG 5023 | 1154 | NSG 5084 | 2357 | NSG 7019 | 1097 |
| NSG 5024 | 1435 | NSG 5085 | 3537 | NSG 7020 | 1159 |
| NSG 5025 | 2148 | NSG 5086 | 2215 | NSG 7021 | 3579 |
| NSG 5027 | 2030 | NSG 5087 | 3538 | NSG 7022 | 3078 |
| NSG 5029 | 2286 | NSG 5088 | 2642 | NSG 7023 | 1235 |
| NSG 5031 | 3514 | NSG 5089 | 1638 | NSG 7024 | 1160 |
| NSG 5032 | 2953 | NSG 5090 | 2290 | NSG 7025 | 3396 |
| NSG 5033 | 2954 | NSG 5092 | 1528 | NSG 7026 | 1275 |
| NSG 5034 | 2955 | NSG 5093 | 1505 | NSG 7027 | 1640 |
| NSG 5035 | 2350 | NSG 5094 | 2358 | NSG 7028 | 2858 |
| NSG 5036 | 3301 | NSG 5095 | 2516 | NSG 7029 | 1437 |
| NSG 5037 | 2930 | NSG 5096 | 2031 | NSG 7031 | 3268 |
| NSG 5038 | 1905 | NSG 5097 | 2599 | NSG 7032 | 3397 |
| NSG 5039 | 3759 | NSG 5098 | 1794 | NSG 7033 | 3802 |
| NSG 5040 | 3348 | NSG 5099 | 2408 | NSG 7034 | 3539 |
| NSG 5041 | 2969 | NSG 5100 | 3801 | NSG 7035 | 3100 |
| NSG 5042 | 2351 | NSG 5101 | 2185 | NSG 7036 | 3022 |
| NSG 5043 | 1155 | NSG 5102 | 3020 | NSG 7037 | 3439 |
| NSG 5044 | 2598 | NSG 5103 | 1795 | NSG 7038 | 3576 |
| NSG 5045 | 2956 | NSG 5104 | 1892 | NSG 7039 | 2037 |
| NSG 5046 | 1156 | NSG 5105 | 1756 | NSG 7040 | 1098 |
| NSG 5047 | 2352 | NSG 5106 | 1659 | NSG 7041 | 3159 |
| NSG 5048 | 2353 | NSG 5107 | 1842 | NSG 7043 | 3398 |
| NSG 5049 | 2095 | NSG 5108 | 1719 | NSG 7044 | 2096 |
| NSG 5050 | 1436 | NSG 5110 | 1915 | NSG 7045 | 1161 |
| NSG 5051 | 2275 | NSG 5111 | 1843 | NSG 7046 | 2364 |
| NSG 5052 | 2276 | NSG 5112 | 2359 | NSG 7047 | 2747 |
| NSG 5053 | 3660 | NSG 5113 | 2517 | NSG 7048 | 2519 |
| NSG 5054 | 3039 | NSG 5115 | 3515 | NSG 7049 | 3349 |
| NSG 5055 | 2376 | NSG 5116 | 1931 | NSG 7050 | 3803 |
| NSG 5056 | 1583 | NSG 5117 | 2600 | NSG 7051 | 1092 |
| NSG 5057 | 1504 | NSG 5118 | 2892 | NSG 7052 | 1586 |

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| GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. |
|------------------------------|------------|------------------------------|------------|------------------------------|------------|
| NSG 7053 | 2787 | NSG 7127 | 1506 | NSG 7196 | 2365 |
| NSG 7055 | 2292 | NSG 7128 | 1796 | NSG 7198 | 3473 |
| NSG 7063 | 2377 | NSG 7129 | 1240 | NSG 7200 | 2896 |
| NSG 7065 | 2985 | NSG 7130 | 1797 | NSG 7201 | 1169 |
| NSG 7066 | 2839 | NSG 7131 | 2790 | NSG 7202 | 1246 |
| NSG 7067 | 1997 | NSG 7133 | 3804 | NSG 7203 | 3292 |
| NSG 7069 | 1998 | NSG 7135 | 2934 | NSG 7205 | 1509 |
| NSG 7070 | 1162 | NSG 7136 | 1241 | NSG 7206 | 3577 |
| NSG 7071 | 3003 | NSG 7137 | 2602 | NSG 7207 | 3813 |
| NSG 7072 | 3821 | NSG 7138 | 3160 | NSG 7208 | 1530 |
| NSG 7073 | 3590 | NSG 7139 | 1507 | NSG 7209 | 2604 |
| NSG 7075 | 2893 | NSG 7140 | 1242 | NSG 7210 | 3578 |
| NSG 7076 | 3312 | NSG 7141 | 1702 | NSG 7212 | 2074 |
| NSG 7077 | 2520 | NSG 7142 | 1166 | NSG 7214 | 3765 |
| NSG 7078 | 3259 | NSG 7143 | 1932 | NSG 7215 | 3805 |
| NSG 7079 | 3815 | NSG 7144 | 2857 | NSG 7216 | 1184 |
| NSG 7080 | 2788 | NSG 7145 | 1874 | NSG 7217 | 1099 |
| NSG 7081 | 2521 | NSG 7146 | 1167 | NSG 7219 | 3816 |
| NSG 7083 | 3822 | NSG 7147 | 3291 | NSG 7220 | 1510 |
| NSG 7084 | 1236 | NSG 7150 | 3023 | NSG 7221 | 2647 |
| NSG 7085 | 3760 | NSG 7151 | 1653 | NSG 7222 | 2994 |
| NSG 7087 | 2717 | NSG 7152 | 1508 | NSG 7224 | 1800 |
| NSG 7088 | 2789 | NSG 7154 | 2542 | NSG 7225 | 3024 |
| NSG 7089 | 3766 | NSG 7155 | 1243 | NSG 7226 | 3571 |
| NSG 7090 | 3570 | NSG 7156 | 2935 | NSG 7227 | 2526 |
| NSG 7091 | 2522 | NSG 7157 | 3399 | NSG 7229 | 1265 |
| NSG 7092 | 1438 | NSG 7158 | 1588 | NSG 7230 | 2995 |
| NSG 7093 | 2993 | NSG 7159 | 3516 | NSG 7231 | 1801 |
| NSG 7094 | 1237 | NSG 7160 | 1244 | NSG 7232 | 3518 |
| NSG 7095 | 2410 | NSG 7161 | 1644 | NSG 7234 | 1286 |
| NSG 7096 | 3313 | NSG 7162 | 3517 | NSG 7235 | 2936 |
| NSG 7097 | 2735 | NSG 7163 | 3827 | NSG 7236 | 1933 |
| NSG 7098 | 2378 | NSG 7164 | 1589 | NSG 7237 | 2648 |
| NSG 7099 | 1439 | NSG 7165 | 1798 | NSG 7238 | 1170 |
| NSG 7100 | 1641 | NSG 7166 | 1799 | NSG 7239 | 1591 |
| NSG 7101 | 1163 | NSG 7167 | 2141 | NSG 7242 | 1951 |
| NSG 7102 | 1642 | NSG 7168 | 1168 | NSG 7243 | 2937 |
| NSG 7104 | 2932 | NSG 7169 | 2958 | NSG 7244 | 1185 |
| NSG 7105 | 2894 | NSG 7170 | 2862 | NSG 7245 | 1946 |
| NSG 7106 | 1179 | NSG 7172 | 3819 | NSG 7246 | 1171 |
| NSG 7107 | 3540 | NSG 7173 | 3761 | NSG 7248 | 2897 |
| NSG 7108 | 2646 | NSG 7174 | 3762 | NSG 7249 | 1172 |
| NSG 7110 | 1440 | NSG 7175 | 2411 | NSG 7250 | 3519 |
| NSG 7111 | 3732 | NSG 7176 | 2412 | NSG 8001 | 1004 |
| NSG 7112 | 1238 | NSG 7178 | 3185 | NSG 8002 | 2010 |
| NSG 7113 | 1587 | NSG 7179 | 2032 | NSG 8003 | 1038 |
| NSG 7114 | 1164 | NSG 7180 | 1590 | NSG 8004 | 3303 |
| NSG 7115 | 2523 | NSG 7182 | 1100 | NSG 8005 | 2651 |
| NSG 7116 | 2957 | NSG 7184 | 2986 | NSG 8007 | 3318 |
| NSG 7117 | 1441 | NSG 7186 | 2525 | NSG 8008 | 2223 |
| NSG 7118 | 2524 | NSG 7187 | 2603 | NSG 8009 | 2678 |
| NSG 7119 | 3269 | NSG 7189 | 3440 | NSG 8011 | 1005 |
| NSG 7120 | 3260 | NSG 7190 | 2372 | NSG 8012 | 3323 |
| NSG 7121 | 1643 | NSG 7191 | 2413 | NSG 8013 | 1006 |
| NSG 7122 | 1660 | NSG 7192 | 3824 | NSG 8014 | 2004 |
| NSG 7123 | 1165 | NSG 7193 | 3261 | NSG 8015 | 2655 |
| NSG 7125 | 1239 | NSG 7194 | 2895 | NSG 8016 | 2254 |
| NSG 7126 | 2933 | NSG 7195 | 1245 | NSG 8017 | 1033 |

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| GRANT/ CONTRACT NUMBER | ACC NO. | GRANT/ CONTRACT NUMBER | ACC NO. |
|------------------------------|------------|------------------------------|------------|
| NSG 8018 | 2237 | S-54214A | 2606 |
| NSG 8019 | 1952 | S-55672A | 1947 |
| NSG 8020 | 2005 | W-13995 | 2527 |
| NSG 8021 | 3308 | W-14061 | 1822 |
| NSG 8022 | 1007 | W-14108 | 1645 |
| NSG 8023 | 2656 | W-14133 | 2097 |
| NSG 8025 | 2255 | W-14168 | 3161 |
| NSG 8026 | 2657 | | |
| NSG 8027 | 2008 | | |
| NSG 8028 | 2256 | | |
| NSG 8029 | 2257 | | |
| NSG 8030 | 2006 | | |
| NSG 8031 | 1934 | | |
| NSG 8032 | 3324 | | |
| NSG 8033 | 1008 | | |
| NSG 8034 | 2241 | | |
| NSG 8035 | 3319 | | |
| NSG 8036 | 2652 | | |
| NSG 8037 | 1009 | | |
| NSG 8038 | 1039 | | |
| NSG 8039 | 2007 | | |
| NSG 8040 | 2996 | | |
| NSG 8041 | 1010 | | |
| NSG 9005 | 3196 | | |
| NSG 9006 | 3380 | | |
| NSG 9010 | 1893 | | |
| NSG 9011 | 3270 | | |
| NSG 9013 | 3025 | | |
| NSG 9016 | 2658 | | |
| NSG 9019 | 1247 | | |
| NSG 9020 | 1661 | | |
| NSG 9021 | 3520 | | |
| NSG 9022 | 2970 | | |
| NSG 9024 | 3572 | | |
| NSG 9025 | 2898 | | |
| NSG 9026 | 3547 | | |
| NSG 9028 | 2997 | | |
| NSG 9030 | 2258 | | |
| NSG 9031 | 2605 | | |
| NSG 9032 | 3763 | | |
| NSG 9033 | 3378 | | |
| NSG 9034 | 1663 | | |
| NSG 9035 | 2718 | | |
| NSG 9036 | 1802 | | |
| NSG 9037 | 1757 | | |
| NSG 9038 | 3376 | | |
| NSG 9039 | 3400 | | |
| NSG 9040 | 1999 | | |
| NSG 9042 | 3474 | | |
| NSG 9043 | 3476 | | |
| NSG 9044 | 3026 | | |
| NSR 09-010-027 | 1875 | | |
| NSR 12-001-019 | 2033 | | |
| NSR 24-005-245 | 2649 | | |
| NSR 31-001-901 | 2791 | | |
| NSR 44-004-041 | 3541 | | |
| NSR 44-004-089 | 3542 | | |
| S-27376B | 3101 | | |

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APPENDIX B

CROSS INDEX BY FIELD OF SCIENCE AND ENGINEERING

The Fields used here are specified by Amendment J, "Standard Classification of Fields of Science and Engineering," to Office of Management and Budget (OMB) Circular A-46, "Standards for Statistical Surveys." Field codes are interpreted as follows:

| | | | |
|----------------------------|---|------------------------|-------------------------|
| PHYSICAL SCIENCES | ENVIRONMENTAL SCIENCES (Terrestrial and extraterrestrial) | LIFE SCIENCES | SOCIAL SCIENCES |
| 11 ASTRONOMY | 31 ATMOSPHERIC SCIENCES | 51 BIOLOGY | 71 ANTHROPOLOGY |
| 12 CHEMISTRY | 32 GEOLOGICAL SCIENCES | 52 CLINICAL MEDICAL | 72 ECONOMICS |
| 13 PHYSICS | 33 OCEANOGRAPHY | 53 OTHER MEDICAL | 73 HISTORY |
| 19 PHYSICAL SCIENCES, NEC* | 39 ENVIRONMENTAL SCIENCES, NEC* | 59 LIFE SCIENCES, NEC* | 74 LINGUISTICS |
| | | | 75 POLITICAL SCIENCE |
| | | | 76 SOCIOLOGY |
| | | | 79 SOCIAL SCIENCE, NEC* |
| | ENGINEERING | | |
| | 41 AERONAUTICAL | | |
| | 42 ASTRONAUTICAL | | |
| | 43 CHEMICAL | | |
| | 44 CIVIL | | |
| | 45 ELECTRICAL | | |
| | 46 MECHANICAL | | |
| | 47 METALLURGY AND MATERIALS | | |
| | 49 ENGINEERING, NEC* | | |
| MATHEMATICS | | PSYCHOLOGICAL | OTHER SCIENCES** |
| 21 ANY DISCIPLINE(S) | | 61 BIOLOGICAL | 99 ALL DISCIPLINE(S) |
| | | 62 SOCIAL ASPECTS | |
| | | 69 PSYCHOLOGICAL, NEC* | |

*Not Elsewhere Classified (For interdisciplinary projects and others not listed by discipline name)

**For interdisciplinary projects which cannot be classified within any of the preceding main fields

Abbreviations used in the "Technical Officer Locations" column are discussed in the prefatory pages.

| FIELD CODE | INSTITUTION | TECHNICAL OFFICER | TECH OFF LOC | FIRST PRINCIPAL INVESTIGATOR | GRANT/ CONTRACT NUMBER | ACC NO. |
|------------|---------------------|-------------------|--------------|------------------------------|------------------------|---------|
| 11 | ALABAMA A&M UNIV | Parnell, T. A. | MSFC | George, M. C. | NSG 8001 | 1004 |
| 11 | BELOIT COLLEGE | Sobieski, S. | GSFC | Schroeder, D. J. | NGR 50-010-001 | 3769 |
| 11 | BOSTON UNIVERSITY | Kupperian, J. E. | GSFC | Adelman, S. J. | NSG 5055 | 2376 |
| 11 | BOWIE STATE COLLEGE | Boldt, E. A. | GSFC | Tornabene, H. S. | NGR 21-027-001 | 2268 |
| 11 | BOWLING GRN STATE U | Roman, N. G. | HQ-SA | Ptak, R. L. | NSG 7022 | 3078 |
| 11 | BRANDEIS UNIVERSITY | Timothy, A. F. | HQ-ST | Stein, R. F. | NSG 7098 | 2378 |
| 11 | BRIGHAM YOUNG UNIV | Brunk, W. E. | HQ-SL | Jones, D. E. | NGR 45-001-032 | 3554 |
| 11 | CALIF INST OF TECH | Hall, C. F. | ARC | Munch, G. | NAS 2-6556 | 1188 |
| 11 | CALIF INST OF TECH | Cameron, R. M. | ARC | Werner, M. W. | NGR 05-002-281 | 1221 |
| 11 | CALIF INST OF TECH | Hymowitz, E. W. | GSFC | Neugebauer, G. | NAS 5-22555 | 1192 |
| 11 | CALIF INST OF TECH | Neupert, W. M. | GSFC | Zirin, H. | NAS 5-22939 | 1193 |
| 11 | CALIF INST OF TECH | Sobieski, S. | GSFC | Neugebauer, G. | NAS 5-23287 | 1195 |
| 11 | CALIF INST OF TECH | Wrublik, D. P. | GSFC | Garmire, G. P. | NAS 5-23315 | 1196 |
| 11 | CALIF INST OF TECH | Weinreb, M. B. | GSFC | Garmire, G. P. | NAS 5-23615 | 1197 |
| 11 | CALIF INST OF TECH | Sobieski, S. | GSFC | Oke, J. B. | NGR 05-002-311 | 1228 |
| 11 | CALIF INST OF TECH | Krome, H. O. | MSFC | Stone, E. C. | NAS 8-27978 | 1198 |
| 11 | CALIF INST OF TECH | Rosendahl, J. D. | HQ-SA | Oke, J. B. | NGL 05-002-134 | 1205 |
| 11 | CALIF INST OF TECH | Bogges, N. W. | HQ-SA | Neugebauer, G. | NGL 05-002-207 | 1211 |
| 11 | CALIF INST OF TECH | Sofia, S. | HQ-SA | Vogt, R. E. | NGR 05-002-160 | 1218 |
| 11 | CALIF INST OF TECH | Bogges, N. W. | HQ-SA | Thorne, D. | NGR 05-002-256 | 1220 |
| 11 | CALIF INST OF TECH | Opp, A. G. | HQ-SA | Garmire, G. P. | NGR 05-002-284 | 1222 |
| 11 | CALIF INST OF TECH | Bogges, N. W. | HQ-SA | Neugebauer, G. | NSG 7140 | 1242 |
| 11 | CALIF INST OF TECH | Roman, N. G. | HQ-SA | Christysackmann, I. J. | NSG 7195 | 1245 |
| 11 | CALIF INST OF TECH | Brunk, W. E. | HQ-SL | Muhleman, D. O. | NGL 05-002-003 | 1200 |
| 11 | CALIF INST OF TECH | Brunk, W. E. | HQ-SL | Neugebauer, G. | NGL 05-002-007 | 1201 |
| 11 | CALIF INST OF TECH | Brunk, W. E. | HQ-SL | Munch, G. | NGL 05-002-140 | 1207 |
| 11 | CALIF INST OF TECH | Brunk, W. E. | HQ-SL | Muhleman, D. O. | NGR 05-002-114 | 1214 |
| 11 | CALIF INST OF TECH | Brunk, W. E. | HQ-SL | Westphal, J. A. | NGR 05-002-185 | 1219 |
| 11 | CALIF INST OF TECH | Brunk, W. E. | HQ-SL | Leighton, R. B. | NSG 7136 | 1241 |
| 11 | CALIF INST OF TECH | Timothy, A. F. | HQ-ST | Henry, D. G. | NGL 05-002-034 | 1202 |

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| FIELD CODE | INSTITUTION | TECHNICAL OFFICER | TECH OFF LOC | FIRST PRINCIPAL INVESTIGATOR | GRANT/ CONTRACT NUMBER | ACC NO. |
|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 11 | CALIF INST OF TECH | Timothy, A. F. | HQ-ST | Zirin, H. | NGR 05-002-142 | 1217 |
| 11 | CALIF INST OF TECH | Timothy, A. F. | HQ-ST | Zirin, H. | NGR 05-002-294 | 1223 |
| 11 | CALIF INST OF TECH | Schmerling, E. R. | HQ-ST | Garmire, G. P. | NGR 05-002-296 | 1224 |
| 11 | CAL STATE U-CHICO | Zill, L. P. | ARC | Zeilenga, J. H. | NCA 2-110601 | 1253 |
| 11 | CAL STATE U-L ANGLES | Zill, L. P. | ARC | Goldwhite, H. | NCA 2-385502 | 1264 |
| 11 | CITY COLLEGE OF N Y | Stothers, R. B. | GSFC | Erlbach, E. | NGL 33-013-040 | 2852 |
| 11 | COLUMBIA UNIVERSITY | Donley, J. L. | GSFC | Novick, R. | NAS 5-22341 | 2865 |
| 11 | COLUMBIA UNIVERSITY | White, A. F., Jr. | GSFC | Novick, R. | NAS 5-22890 | 2867 |
| 11 | COLUMBIA UNIVERSITY | Weinreb, M. B. | GSFC | Novick, R. | NAS 5-23623 | 2869 |
| 11 | COLUMBIA UNIVERSITY | Bissell, E. E., Jr. | GSFC | Novick, R. | NGR 33-008-102 | 2875 |
| 11 | COLUMBIA UNIVERSITY | Thaddeus, P. | GSFC | Hartmann, S. R. | NGR 33-008-191 | 2881 |
| 11 | COLUMBIA UNIVERSITY | Kupperian, J. E. | GSFC | Wolff, R. S. | NSG 5079 | 2890 |
| 11 | COLUMBIA UNIVERSITY | Kupperian, J. E. | GSFC | Wolff, R. S. | NSG 5118 | 2892 |
| 11 | COLUMBIA UNIVERSITY | Manning, H. S. | MSFC | Novick, R. | NAS 8-30753 | 2872 |
| 11 | COLUMBIA UNIVERSITY | Roman, N. G. | HQ-SA | Weisskopf, M. C. | NGR 33-008-194 | 2882 |
| 11 | COLUMBIA UNIVERSITY | Boggess, N. W. | HQ-SA | Austin, P. M. | NSG 7105 | 2894 |
| 11 | COLUMBIA UNIVERSITY | Sofia, S. | HQ-SA | Weisskopf, M. C. | NSG 7248 | 2897 |
| 11 | COLUMBIA UNIVERSITY | Taylor, W. L. | HQ-ST | Wolff, R. S. | NGR 33-008-183 | 2879 |
| 11 | COLUMBIA UNIVERSITY | Timothy, A. F. | HQ-ST | Wolff, R. S. | NGR 33-008-189 | 2880 |
| 11 | COLUMBIA UNIVERSITY | Timothy, A. F. | HQ-ST | Novick, R. | NGR 33-008-200 | 2884 |
| 11 | COLUMBIA UNIVERSITY | Timothy, A. F. | HQ-ST | Novick, R. | NSG 7075 | 2893 |
| 11 | CONCORDIA COL-MOORHD | Berg, O. E. | GSFC | Bailey, C. F. | NAS 5-23557 | 2613 |
| 11 | CORNELL UNIVERSITY | Erickson, E. F. | ARC | Houck, J. R. | NAS 2-8706 | 2901 |
| 11 | CORNELL UNIVERSITY | Cameron, R. M. | ARC | Houck, J. R. | NGR 33-010-081 | 2912 |
| 11 | CORNELL UNIVERSITY | Cameron, R. M. | ARC | Harwit, M. O. | NGR 33-010-146 | 2917 |
| 11 | CORNELL UNIVERSITY | Cameron, R. M. | ARC | Houck, J. R. | NGR 33-010-182 | 2921 |
| 11 | CORNELL UNIVERSITY | Hymowitz, E. W. | GSFC | Houck, J. R. | NAS 5-22586 | 2903 |
| 11 | CORNELL UNIVERSITY | Trombka, J. I. | GSFC | Greisen, K. I. | NSG 5037 | 2930 |
| 11 | CORNELL UNIVERSITY | Opp, A. G. | HQ-SA | Greisen, K. I. | NGR 33-010-145 | 2916 |
| 11 | CORNELL UNIVERSITY | Boggess, N. W. | HQ-SA | Harwit, M. O. | NGR 33-010-172 | 2919 |
| 11 | CORNELL UNIVERSITY | Brunk, W. E. | HQ-SL | Harwit, M. O. | NGR 33-010-210 | 2924 |
| 11 | CORNELL UNIVERSITY | Brunk, W. E. | HQ-SL | Veverka, J. | NSG 7126 | 2933 |
| 11 | DARTMOUTH COLLEGE | Schmerling, E. R. | HQ-ST | Sonnerup, B. | NSG 7097 | 2735 |
| 11 | DUKE UNIVERSITY | Trombka, J. I. | GSFC | O'Foghluha, F. R. | NGR 34-001-041 | 3048 |
| 11 | FEDERAL CITY COLLEGE | Webster, W. H., Jr. | GSFC | Nottingham, W. C. | NGR 09-050-003 | 1848 |
| 11 | FEDERAL CITY COLLEGE | Pohly, J. G. | HQ-P | McDowell, H. | NGR 09-050-010 | 1849 |
| 11 | FLORIDA STATE UNIV | Brunk, W. E. | HQ-SL | Hunt, R. H. | NGR 10-004-056 | 1909 |
| 11 | FLORIDA TECH UNIV | Hobbs, R. W. | GSFC | Katzin, J. C. | NSG 5110 | 1915 |
| 11 | HARVARD UNIVERSITY | Hall, C. F. | ARC | Goody, R. M. | NAS 2-9127 | 2380 |
| 11 | HARVARD UNIVERSITY | Underhill, A. B. | GSFC | Dupree, A. K. | NAS 5-20764 | 2382 |
| 11 | HARVARD UNIVERSITY | Donley, J. L. | GSFC | Reeves, E. M. | NAS 5-22343 | 2383 |
| 11 | HARVARD UNIVERSITY | White, A. F., Jr. | GSFC | Withbroe, G. L. | NAS 5-22374 | 2384 |
| 11 | HARVARD UNIVERSITY | Underhill, A. B. | GSFC | Dupree, A. K. | NAS 5-23371 | 2386 |
| 11 | HARVARD UNIVERSITY | Kupperian, J. E. | GSFC | Noyes, R. W. | NGR 22-007-285 | 2405 |
| 11 | HARVARD UNIVERSITY | Kupperian, J. E. | GSFC | Dupree, A. K. | NSG 5099 | 2408 |
| 11 | HARVARD UNIVERSITY | Unavailable | MSFC | Goldberg, L. | NAS 5-3949 | 2381 |
| 11 | HARVARD UNIVERSITY | Carter, C. H. | HQ-P | Field, G. B. | NSG 7176 | 2412 |
| 11 | HARVARD UNIVERSITY | Boggess, N. W. | HQ-SA | Fazio, G. G. | NGR 22-007-270 | 2402 |
| 11 | HARVARD UNIVERSITY | Sofia, S. | HQ-SA | Cameron, A. G. | NGR 22-007-272 | 2403 |
| 11 | HARVARD UNIVERSITY | Timothy, A. F. | HQ-ST | Parkinson, W. H. | NGR 22-007-202 | 2396 |
| 11 | HARVARD UNIVERSITY | Timothy, A. F. | HQ-ST | Maxwell, A. | NGR 22-007-257 | 2399 |
| 11 | HARVARD UNIVERSITY | Timothy, A. F. | HQ-ST | Noyes, R. W. | NSG 7018 | 2409 |
| 11 | HOUSTON BAPTIST UNIV | Kondo, Y. | JSC | Modisette, J. L. | NGR 44-081-001 | 3374 |
| 11 | HOUSTON BAPTIST UNIV | Kondo, Y. | JSC | Modisette, J. L. | NGR 44-081-005 | 3375 |
| 11 | HOUSTON BAPTIST UNIV | Potter, A. E. | JSC | Morgan, T. H. | NSG 9038 | 3376 |
| 11 | HOWARD UNIVERSITY | Maran, S. P. | GSFC | Kumar, C. K. | NSG 5021 | 1889 |
| 11 | INDIANA U-BLOOMINGTN | Hobbs, R. W. | GSFC | Falk, J. | NAS 5-22987 | 2101 |
| 11 | INDIANA U-BLOOMINGTN | Rosendhal, J. D. | HQ-SA | Johnson, H. R. | NGL 15-003-002 | 2107 |

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| 11 | IOWA STATE UNIV | Zili, L. P. | ARC | Grossman, A. S. | NCA 2-340602 | 2158 |
| 11 | JERSEY CITY ST COL | Zill, L. P. | ARC | Bailey, W. L. | NCA 2-350501 | 2748 |
| 11 | JERSEY CITY ST COL | Ericson, E. F. | ARC | Bailey, W. L. | NCA 2-350601 | 2749 |
| 11 | JOHNS HOPKINS UNIV | Bogges, A. | GSFC | Fastie, W. G. | NAS 5-23316 | 2279 |
| 11 | JOHNS HOPKINS UNIV | Bissell, E. E., Jr. | GSFC | Fastie, W. G. | NGR 21-001-001 | 2282 |
| 11 | JOHNS HOPKINS UNIV | Sobieski, S. | GSFC | Fastie, W. G. | NGR 21-061-115 | 2284 |
| 11 | JOHNS HOPKINS UNIV | Kupperian, J. E. | GSFC | Henry, R. C. | NSG 5029 | 2286 |
| 11 | JOHNS HOPKINS UNIV | Maran, S. P. | GSFC | Feldman, P. D. | NSG 5065 | 2287 |
| 11 | JOHNS HOPKINS UNIV | Kupperian, J. E. | GSFC | Moos, H. W. | NSG 5067 | 2288 |
| 11 | JOHNS HOPKINS UNIV | Kupperian, J. E. | GSFC | Henry, R. C. | NSG 5078 | 2289 |
| 11 | JOHNS HOPKINS UNIV | Kupperian, J. E. | GSFC | Henry, R. C. | NSG 5119 | 2291 |
| 11 | LEHIGH UNIVERSITY | Kondo, Y. | JSC | McCluskey, G. E., Jr. | NGR 39-007-061 | 3220 |
| 11 | LA STATE U-BAT ROUGE | Opp, A. G. | HQ-SA | Huggett, R. W. | NGR 19-001-012 | 2248 |
| 11 | LA STATE U-SHREVEPT | Giuli, R. T. | JSC | Moss, T. A. | NAS 9-9317 | 2249 |
| 11 | MASS INST OF TECH | Hall, C. F. | ARC | Pettengill, G. H. | NAS 2-8977 | 2419 |
| 11 | MASS INST OF TECH | Hall, C. F. | ARC | Shapiro, I. I. | NAS 2-9132 | 2420 |
| 11 | MASS INST OF TECH | Raymos, R. | ARC | Counselman, C. C., III | NAS 2-9151 | 2421 |
| 11 | MASS INST OF TECH | Cameron, R. M. | ARC | McCord, T. B. | NGR 22-009-718 | 2472 |
| 11 | MASS INST OF TECH | Piterski, N. J. | GSFC | Clark, G. W. | NAS 5-11450 | 2425 |
| 11 | MASS INST OF TECH | Weinreb, M. B. | GSFC | Bradt, H. V. | NAS 5-23624 | 2430 |
| 11 | MASS INST OF TECH | Bissell, E. E., Jr. | GSFC | Bradt, H. V. | NGR 22-009-730 | 2475 |
| 11 | MASS INST OF TECH | Sobieski, S. | GSFC | McCord, T. B. | NGR 22-009-778 | 2480 |
| 11 | MASS INST OF TECH | Hansen, J. E. | GSFC | Rivas, E. K. | NSG 5076 | 2515 |
| 11 | MASS INST OF TECH | Bodie, W. G. | MSFC | Bradt, H. V. | NAS 8-27972 | 2431 |
| 11 | MASS INST OF TECH | Jordan, W. E. | MSFC | Lewin, W. H. | NAS 8-27975 | 2432 |
| 11 | MASS INST OF TECH | Manning, H. S. | MSFC | Clark, G. W. | NAS 8-30752 | 2436 |
| 11 | MASS INST OF TECH | Bogges, N. W. | HQ-SA | Weiss, R. | NGR 22-009-526 | 2464 |
| 11 | MASS INST OF TECH | Roman, N. G. | HQ-SA | Weiss, R. | NSG 7091 | 2522 |
| 11 | MASS INST OF TECH | Bogges, N. W. | HQ-SA | Kleinmann, S. G. | NSG 7186 | 2525 |
| 11 | MASS INST OF TECH | Brunk, W. E. | HQ-SL | McCord, T. B. | NGR 22-009-473 | 2463 |
| 11 | MASS INST OF TECH | Fellows, R. F. | HQ-SL | McCord, T. B. | NGR 22-009-583 | 2467 |
| 11 | MASS INST OF TECH | Brunk, W. E. | HQ-SL | Pettengill, G. H. | NGR 22-009-672 | 2470 |
| 11 | MONTANA STATE UNIV | Wood, D. B. | HQ-SA | Nordtvedt, K., Jr. | NGR 27-001-040 | 2719 |
| 11 | MORGAN STATE UNIV | Baker, G. R. | GSFC | Hammond, E. C., Jr. | NSG 5074 | 2296 |
| 11 | NEW MEX INST MINING | Maran, S. P. | GSFC | Hume, W. | NCA 5-43 | 2797 |
| 11 | NEW MEX INST MINING | Maran, S. P. | GSFC | Hume, W. | NCA 5-58 | 2799 |
| 11 | NEW MEX INST MINING | Maran, S. P. | GSFC | Hume, W. | NCA 5-59 | 2800 |
| 11 | NEW MEX ST U-LAS CR | Harvey, G. A. | LARC | Beebe, R. F. | NAS 1-13586 | 2801 |
| 11 | NEW MEX ST U-LAS CR | Roman, N. G. | HQ-SA | Liefeld, R. J. | NGL 32-003-069 | 2810 |
| 11 | NEW MEX ST U-LAS CR | Brunk, W. E. | HQ-SL | Beebe, R. F. | NGL 32-003-001 | 2809 |
| 11 | NEW YORK UNIVERSITY | Hall, C. F. | ARC | Weinberg, J. L. | NAS 2-7963 | 2941 |
| 11 | NEW YORK UNIVERSITY | Lazarus, A. J. | HQ-SA | Korff, S. A. | NSG 7116 | 2957 |
| 11 | NORTHWESTERN UNIV | Henize, K. G. | JSC | Telford, J. W. | NAS 9-12280 | 2038 |
| 11 | NORTHWESTERN UNIV | Rosendhal, J. D. | HQ-SA | Huang, S. S. | NGL 14-007-041 | 2040 |
| 11 | NORTHWESTERN UNIV | Roman, N. G. | HQ-SA | Bahng, J. D. | NGR 14-007-122 | 2044 |
| 11 | PRINCETON UNIVERSITY | Kupperian, J. E. | GSFC | Spitzer, L., Jr. | NAS 5-1810 | 2753 |
| 11 | PRINCETON UNIVERSITY | Sobieski, S. | GSFC | Lowrance, J. L. | NAS 5-20833 | 2754 |
| 11 | PRINCETON UNIVERSITY | Sobieski, S. | GSFC | Morton, D. C. | NAS 5-22989 | 2757 |
| 11 | PRINCETON UNIVERSITY | Sobieski, S. | GSFC | Danielson, R. E. | NAS 5-23284 | 2758 |
| 11 | PRINCETON UNIVERSITY | Tycz, M. | GSFC | Lowrance, J. L. | NAS 5-23386 | 2759 |
| 11 | PRINCETON UNIVERSITY | Tycz, M. | GSFC | Lowrance, J. L. | NAS 5-23387 | 2760 |
| 11 | PRINCETON UNIVERSITY | Kupperian, J. E. | GSFC | Spitzer, L., Jr. | NAS 5-23576 | 2761 |
| 11 | PRINCETON UNIVERSITY | Sobieski, S. | GSFC | Morton, D. C. | NGR 31-001-306 | 2774 |
| 11 | PRINCETON UNIVERSITY | Harris, J. W. | JSC | Hollister, L. S. | NGL 31-001-283 | 2766 |
| 11 | PRINCETON UNIVERSITY | Roman, N. G. | HQ-SA | Spitzer, L., Jr. | NGL 31-001-007 | 2763 |
| 11 | PRINCETON UNIVERSITY | Roman, N. G. | HQ-SA | Millich, F. | NGR 31-001-001 | 2767 |
| 11 | PRINCETON UNIVERSITY | Roman, N. G. | HQ-SA | Lowrance, J. L. | NSR 31-001-901 | 2791 |
| 11 | PRINCETON UNIVERSITY | Brunk, W. E. | HQ-SL | Smith, W. H. | NGR 31-001-242 | 2771 |

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| 11 | PRINCETON UNIVERSITY | Brunk, W. E. | HQ-SL | Danielson, R. E. | NSG 7053 | 2787 |
| 11 | PRINCETON UNIVERSITY | Timothy, A. F. | HQ-ST | Schwartzchild, M. | NSG 7088 | 2789 |
| 11 | PURDUE UNIVERSITY | Rosendhal, J. D. | HQ-SA | Moffett, T. J. | NSG 7167 | 2141 |
| 11 | RICE UNIVERSITY | Ballance, C. W., Jr. | WFC | Anderson, H. R., Jr. | NAS 6-1667 | 3384 |
| 11 | RICE UNIVERSITY | Sofia, S. | HQ-SA | Clayton, D. D. | NSG 7015 | 3395 |
| 11 | SACRAMENTO CITY COL | Timothy, A. F. | HQ-ST | Vorpahl, J. A. | NGR 05-084-002 | 1272 |
| 11 | SAN DIEGO STATE UNIV | Roosen, R. G. | GSFC | Angione, R. J. | NAS 5-23249 | 1273 |
| 11 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Hagar, C. | NCA 2-660504 | 1280 |
| 11 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Hagar, C. | NCA 2-660603 | 1285 |
| 11 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Maddock, M. E. | NCA 2-675612 | 1317 |
| 11 | SAN JOSE STATE UNIV | Reynolds, R. T. | ARC | Riegel, C. A. | NSG 2047 | 1325 |
| 11 | SO UNIV-BATON ROUGE | Estabrook, F. B. | JPL | Chakkalakal, D. A. | NGR 19-005-006 | 2251 |
| 11 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Ritson, D. | NCA 2-745514 | 1362 |
| 11 | STANFORD UNIVERSITY | Caroff, L. J. | ARC | Petrosian, V. | NCA 2-745613 | 1378 |
| 11 | STANFORD UNIVERSITY | Chisel, D. M. | ARC | Walker, A. B., Jr. | NSG 2049 | 1422 |
| 11 | STANFORD UNIVERSITY | Campbell, C. E. | GSFC | Hofstadter, R. | NAS 5-20987 | 1342 |
| 11 | STANFORD UNIVERSITY | Weinreb, M. B. | GSFC | Walker, A. B., Jr. | NAS 5-23618 | 1345 |
| 11 | STANFORD UNIVERSITY | Sofia, S. | HQ-SA | Hofstadter, R. | NGR 05-020-452 | 1400 |
| 11 | STANFORD UNIVERSITY | Bogges, N. W. | HQ-SA | Petrosian, V. | NGR 05-020-510 | 1402 |
| 11 | STANFORD UNIVERSITY | Jordan, S. D. | HQ-SA | Wilcox, J. M. | NGR 05-020-559 | 1403 |
| 11 | STANFORD UNIVERSITY | Sofia, S. | HQ-SA | Sturrock, P. A. | NGR 05-020-668 | 1409 |
| 11 | STANFORD UNIVERSITY | Timothy, A. F. | HQ-ST | Jordan, T. H. | NSG 7092 | 1438 |
| 11 | STANFORD UNIVERSITY | Timothy, A. F. | HQ-ST | Walker, A. B., Jr. | NSG 7099 | 1439 |
| 11 | STATE UNIV NY-ALBANY | Gary, G. A. | MSFC | Weinberg, J. L. | NSG 8040 | 2996 |
| 11 | ST U NY COL-GENESE | Roman, N. G. | HQ-SA | Meisel, D. D. | NGR 33-219-002 | 3030 |
| 11 | STATE U NY-STONY BRK | Chiu, H. Y. | GSFC | Owen, T. | NGL 33-015-082 | 3007 |
| 11 | STATE U NY-STONY BRK | Sofia, S. | HQ-SA | Forman, M. A. | NGR 33-015-180 | 3016 |
| 11 | STATE U NY-STONY BRK | Brunk, W. E. | HQ-SL | Owen, T. | NGR 33-015-141 | 3011 |
| 11 | STATE U NY-STONY BRK | Timothy, A. F. | HQ-ST | Stroke, G. W. | NSG 7003 | 3021 |
| 11 | UNIV ALA-HUNTSVILLE | Parnell, T. A. | MSFC | Hiser, H. W. | NAS 8-24908 | 1041 |
| 11 | UNIV ALA-HUNTSVILLE | Timothy, A. F. | HQ-ST | Rao, G. L. | NGR 01-008-015 | 1066 |
| 11 | UNIV ALA-TUSCALOOSA | Miller, E. R. | MSFC | Fay, T. D. | NAS 8-31343 | 1079 |
| 11 | UNIV OF ARIZONA | Hall, C. F. | ARC | Gehrels, A. M. | NAS 2-6265 | 1102 |
| 11 | UNIV OF ARIZONA | Zill, L. P. | ARC | Hubbard, W. B., Jr. | NCA 2-40602 | 1119 |
| 11 | UNIV OF ARIZONA | Caroff, L. J. | ARC | Weymann, R. J. | NCA 2-40604 | 1120 |
| 11 | UNIV OF ARIZONA | Cameron, R. M. | ARC | Larson, H. P. | NGR 03-002-332 | 1142 |
| 11 | UNIV OF ARIZONA | Cameron, R. M. | ARC | Hoffman, W. F. | NGR 03-002-390 | 1149 |
| 11 | UNIV OF ARIZONA | Cameron, R. M. | ARC | Woolf, N. | NSG 2042 | 1150 |
| 11 | UNIV OF ARIZONA | Hymowitz, E. W. | GSFC | Low, F. J. | NAS 5-22599 | 1105 |
| 11 | UNIV OF ARIZONA | Browning, R. K. | GSFC | Bowen, T. | NAS 5-23176 | 1106 |
| 11 | UNIV OF ARIZONA | Maran, S. P. | GSFC | Dunkelman, L. | NCA 5-8 | 1121 |
| 11 | UNIV OF ARIZONA | Maran, S. P. | GSFC | Sonett, C. P. | NCA 5-12 | 1122 |
| 11 | UNIV OF ARIZONA | Maran, S. P. | GSFC | Dunkelman, L. | NCA 5-37 | 1123 |
| 11 | UNIV OF ARIZONA | Pearl, J. C. | GSFC | Fink, U. W. | NCA 5-47 | 1126 |
| 11 | UNIV OF ARIZONA | Maran, S. P. | GSFC | Sonett, C. P. | NCA 5-62 | 1127 |
| 11 | UNIV OF ARIZONA | Sobieski, S. | GSFC | Serkowski, K. M. | NGR 03-002-363 | 1143 |
| 11 | UNIV OF ARIZONA | Sobieski, S. | GSFC | Gilbert, G. R. | NGR 03-002-372 | 1146 |
| 11 | UNIV OF ARIZONA | Sobieski, S. | GSFC | Angel, J. R. | NSG 5001 | 1152 |
| 11 | UNIV OF ARIZONA | Hansen, J. E. | GSFC | Gehrels, A. M. | NSG 5043 | 1155 |
| 11 | UNIV OF ARIZONA | Miller, E. R. | MSFC | Sonett, C. P. | NAS 8-31192 | 1109 |
| 11 | UNIV OF ARIZONA | Miller, E. R. | MSFC | Sonett, C. P. | NAS 8-31196 | 1110 |
| 11 | UNIV OF ARIZONA | Roman, N. G. | HQ-SA | Bashkin, S. | NGL 03-002-017 | 1130 |
| 11 | UNIV OF ARIZONA | Roman, N. G. | HQ-SA | Tifft, W. G. | NGL 03-002-032 | 1132 |
| 11 | UNIV OF ARIZONA | Opp, A. G. | HQ-SA | Bowen, T. | NGR 03-002-071 | 1137 |
| 11 | UNIV OF ARIZONA | Bogges, N. B. | HQ-SA | Low, F. J. | NGR 03-002-269 | 1141 |
| 11 | UNIV OF ARIZONA | Bogges, N. W. | HQ-SA | Hoffman, W. F. | NGR 03-002-371 | 1145 |
| 11 | UNIV OF ARIZONA | Sofia, S. | HQ-SA | Jokipii, J. | NSG 7101 | 1163 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Sonett, C. P. | NGL 03-002-002 | 1128 |

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| 11 | UNIV OF ARIZONA | Fellows, R. F. | HQ-SL | Gehrels, T. | NGL 03-002-081 | 1133 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Roemer, E. | NGL 03-002-122 | 1134 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Gehrels, A. M. | NGR 03-002-219 | 1140 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Hubbard, W. B., Jr. | NSG 7045 | 1161 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Fink, U. W. | NSG 7070 | 1162 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Rieke, G. H. | NSG 7114 | 1164 |
| 11 | UNIV OF ARIZONA | Fellows, R. F. | HQ-SL | Gehrels, A. M. | NSG 7123 | 1165 |
| 11 | UNIV OF ARIZONA | Brunk, W. E. | HQ-SL | Hubbard, W. B., Jr. | NSG 7238 | 1170 |
| 11 | UNIV ARKANSAS-FAYETV | Rosendhal, J. D. | HQ-SA | Hughes, R. H. | NSG 7106 | 1179 |
| 11 | UNIV CALIF-BERKELEY | Cameron, R. M. | ARC | Townes, C. H. | NGR 05-003-511 | 1486 |
| 11 | UNIV CALIF-BERKELEY | Cameron, R. M. | ARC | Muller, R. A. | NSG 2125 | 1498 |
| 11 | UNIV CALIF-BERKELEY | Bissell, E. E., Jr. | GSFC | Bowyer, C. S. | NGR 05-003-450 | 1479 |
| 11 | UNIV CALIF-BERKELEY | Kupperian, J. E. | GSFC | Spinrad, H. | NGR 05-003-587 | 1492 |
| 11 | UNIV CALIF-BERKELEY | Kupperian, J. E. | GSFC | Bowyer, C. S. | NSG 5057 | 1504 |
| 11 | UNIV CALIF-BERKELEY | Boggess, N. W. | HQ-SA | Townes, C. H. | NGL 05-003-272 | 1469 |
| 11 | UNIV CALIF-BERKELEY | Sofia, S. | HQ-SA | Price, P. B. | NGR 05-003-376 | 1477 |
| 11 | UNIV CALIF-BERKELEY | Sofia, S. | HQ-SA | Heckman, H. H. | NGR 05-003-513 | 1487 |
| 11 | UNIV CALIF-BERKELEY | Sofia, S. | HQ-SA | Alvarez, L. W. | NGR 05-003-553 | 1488 |
| 11 | UNIV CALIF-BERKELEY | Rosendhal, J. D. | HQ-SA | Silk, J. I. | NGR 05-003-578 | 1491 |
| 11 | UNIV CALIF-BERKELEY | Rosendhal, J. D. | HQ-SA | Bowyer, C. S. | NSG 7139 | 1507 |
| 11 | UNIV CALIF-BERKELEY | Boggess, N. W. | HQ-SA | Richards, P. L. | NSG 7205 | 1509 |
| 11 | UNIV CALIF-BERKELEY | Brunk, W. E. | HQ-SL | Townes, C. H. | NGR 05-003-452 | 1481 |
| 11 | UNIV CALIF-BERKELEY | Brunk, W. E. | HQ-SL | Silver, S. | NSG 7152 | 1508 |
| 11 | UNIV CALIF-BERKELEY | Timothy, A. F. | HQ-ST | Anderson, K. A. | NGR 05-003-510 | 1485 |
| 11 | UNIV CALIF-BERKELEY | Ericson, E. F. | HQ | Gaustad, J. | NCA 2-50606 | 1464 |
| 11 | UNIV CALIF-L ANGELES | Hall, C. F. | ARC | Coleman, P. J., Jr. | NAS 2-7251 | 1532 |
| 11 | UNIV CALIF-L ANGELES | Hall, C. F. | ARC | Kaula, W. M. | NAS 2-9128 | 1535 |
| 11 | UNIV CALIF-L ANGELES | Hall, C. F. | ARC | Schubert, G. | NAS 2-9131 | 1536 |
| 11 | UNIV CALIF-L ANGELES | Kupperian, J. E. | GSFC | Plavec, M. | NGR 05-007-489 | 1577 |
| 11 | UNIV CALIF-L ANGELES | Kupperian, J. E. | GSFC | Peters, C. J. | NSG 5056 | 1583 |
| 11 | UNIV CALIF-L ANGELES | Kupperian, J. E. | GSFC | Jura, M. A. | NSG 5070 | 1584 |
| 11 | UNIV CALIF-L ANGELES | Donn, B. D. | HQ-SL | Wetherill, G. W. | NGL 05-007-005 | 1556 |
| 11 | UNIV CALIF-L ANGELES | Dwornik, S. E. | HQ-SL | Kaula, W. M. | NSG 7113 | 1587 |
| 11 | UNIV CALIF-RIVERSIDE | Sofia, S. | HQ-SA | White, R. S. | NGR 05-008-022 | 1593 |
| 11 | UNIV CALIF-SAN DIEGO | Hall, C. F. | ARC | Fillius, R. W. | NAS 2-6552 | 1594 |
| 11 | UNIV CALIF-SAN DIEGO | Cameron, R. M. | ARC | Soifer, B. T. | NGL 05-009-230 | 1615 |
| 11 | UNIV CALIF-SAN DIEGO | Cameron, R. M. | ARC | Stein, W. A. | NGR 05-005-055 | 1617 |
| 11 | UNIV CALIF-SAN DIEGO | White, A. F., Jr. | GSFC | Peterson, L. E. | NAS 5-22375 | 1598 |
| 11 | UNIV CALIF-SAN DIEGO | Hymowitz, E. W. | GSFC | Soifer, B. T. | NAS 5-22556 | 1599 |
| 11 | UNIV CALIF-SAN DIEGO | Bartlett, R. O. | GSFC | McIlwain, C. E. | NAS 5-23481 | 1600 |
| 11 | UNIV CALIF-SAN DIEGO | Sobieski, S. | GSFC | Beaver, E. A. | NGR 05-009-239 | 1629 |
| 11 | UNIV CALIF-SAN DIEGO | Jordan, W. E. | MSFC | Peterson, L. E. | NAS 8-27974 | 1602 |
| 11 | UNIV CALIF-SAN DIEGO | Fountain, W. F. | MSFC | Hudson, H. S. | NAS 8-28015 | 1603 |
| 11 | UNIV CALIF-SAN DIEGO | Stanley, H. R. | WFC | Hendershott, M. | NAS 6-2506 | 1601 |
| 11 | UNIV CALIF-SAN DIEGO | Roman, N. G. | HQ-SA | Gould, R. J. | NGL 05-005-004 | 1607 |
| 11 | UNIV CALIF-SAN DIEGO | Aucremann, M. J. | HQ-SA | McIlwain, C. E. | NGR 05-009-188 | 1624 |
| 11 | UNIV CALIF-SAN DIEGO | Fellows, R. F. | HQ-SL | Alfven, H. | NGR 05-009-110 | 1622 |
| 11 | UNIV CALIF-SAN DIEGO | Timothy, A. F. | HQ-ST | Penner, S. S. | NGR 05-009-226 | 1628 |
| 11 | UNIV CALIF-S CRUZ | Boggess, N. W. | HQ-SA | Rank, D. M. | NGR 05-061-015 | 1662 |
| 11 | UNIV OF CHICAGO | Hall, C. F. | ARC | Simpson, J. A. | NAS 2-6551 | 2051 |
| 11 | UNIV OF CHICAGO | Cameron, R. M. | ARC | Harper, D. A., Jr. | NGR 14-001-211 | 2068 |
| 11 | UNIV OF CHICAGO | Gillespie, C. M., Jr. | ARC | Harper, D. A., Jr. | NGR 14-001-227 | 2070 |
| 11 | UNIV OF CHICAGO | Cameron, R. M. | ARC | Hildebrand, R. H. | NSG 2057 | 2072 |
| 11 | UNIV OF CHICAGO | White, A. F., Jr. | GSFC | Meyer, P. | NAS 5-20967 | 2054 |
| 11 | UNIV OF CHICAGO | Kupperian, J. E. | GSFC | Parker, E. N. | NSG 5068 | 2073 |
| 11 | UNIV OF CHICAGO | Opp, A. G. | HQ-SA | Parker, E. N. | NGL 14-001-001 | 2055 |
| 11 | UNIV OF CHICAGO | Pellerin, C. | HQ-SA | Meyer, P. | NGL 14-001-005 | 2056 |
| 11 | UNIV OF CHICAGO | Sofia, S. | HQ-SA | Simpson, J. A. | NGL 14-001-006 | 2057 |

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| 11 | UNIV OF CHICAGO | Rosendhal, J. D. | HQ-SA | Hobbs, L. M. | NGR 14-001-147 | 2065 |
| 11 | UNIV OF CHICAGO | Timothy, A. F. | HQ-ST | Blake, R. L. | NGR 14-001-164 | 2066 |
| 11 | UNIV OF CINCINNATI | Lancaster, E. R. | GSFC | Danielli, J. F. | NGR 36-004-068 | 3138 |
| 11 | UNIV OF CINCINNATI | Brunk, W. E. | HQ-SL | Herget, P. | NGR 36-004-075 | 3139 |
| 11 | UNIV COLORADO-BOLDR | Cameron, R. M. | ARC | Webb, W. | NSG 2055 | 1791 |
| 11 | UNIV COLORADO-BOLDR | Underhill, A. B. | GSFC | Conti, P. S. | NAS 5-22833 | 1764 |
| 11 | UNIV COLORADO-BOLDR | Weinreb, M. R. | GSFC | Barth, C. A. | NAS 5-22960 | 1765 |
| 11 | UNIV COLORADO-BOLDR | Underhill, A. B. | GSFC | Linsky, J. L. | NAS 5-23274 | 1766 |
| 11 | UNIV COLORADO-BOLDR | Kalet, M. W. | GSFC | Gause, K. | NAS 5-23577 | 1768 |
| 11 | UNIV COLORADO-BOLDR | Bissell, E. E., Jr. | GSFC | Lillie, C. F. | NGR 06-003-176 | 1779 |
| 11 | UNIV COLORADO-BOLDR | Sobieski, S. | GSFC | Lillie, C. F. | NGR 06-003-219 | 1786 |
| 11 | UNIV COLORADO-BOLDR | Kupperian, J. E. | GSFC | Conti, P. S. | NSG 5098 | 1794 |
| 11 | UNIV COLORADO-BOLDR | Rosendhal, J. D. | HQ-SA | Laurence, G. M. | NASW 2913 | 1772 |
| 11 | UNIV COLORADO-BOLDR | Roman, N. G. | HQ-SA | Lillie, C. F. | NGR 06-003-179 | 1780 |
| 11 | UNIV COLORADO-BOLDR | Calahan, H. D. | HQ-SA | Linsky, J. L. | NGR 06-003-216 | 1785 |
| 11 | UNIV COLORADO-BOLDR | Roman, N. G. | HQ-SA | Lillie, C. F. | NGR 06-003-222 | 1787 |
| 11 | UNIV COLORADO-BOLDR | Sofia, S. | HQ-SA | McCray, R. | NSG 7128 | 1796 |
| 11 | UNIV COLORADO-BOLDR | Timothy, A. F. | HQ-ST | Barth, C. A. | NGR 06-003-069 | 1777 |
| 11 | UNIV OF DENVER | Kupperian, J. E. | GSFC | Lesh, J. R. | NSG 5004 | 1813 |
| 11 | UNIV OF DENVER | Kupperian, J. E. | GSFC | Lesh, J. R. | NSG 5069 | 1814 |
| 11 | UNIV OF FLORIDA | Kupperian, J. E. | GSFC | Chen, K. W. | NSG 5116 | 1931 |
| 11 | UNIV OF FLORIDA | Rosendhal, J. D. | HQ-SA | Carr, T. D. | NSG 7143 | 1932 |
| 11 | UNIV OF HAWAII-MANOA | Bissell, E. E., Jr. | GSFC | Jeffries, J. T. | NGR 12-001-075 | 2027 |
| 11 | UNIV OF HAWAII-MANOA | Kupperian, J. E. | GSFC | Boesgaard, A. M. | NSG 5027 | 2030 |
| 11 | UNIV OF HAWAII-MANOA | Kupperian, J. E. | GSFC | Boesgaard, A. M. | NSG 5096 | 2031 |
| 11 | UNIV OF HAWAII-MANOA | Weir, J. F. | HQ-BX | Jefferies, J. T. | NASW 2742 | 2021 |
| 11 | UNIV OF HAWAII-MANOA | Weir, J. F. | HQ-BX | Jefferies, J. T. | NASW 2801 | 2022 |
| 11 | UNIV OF HAWAII-MANOA | Strickland, A. T. | HQ-SL | Jefferies, J. T. | NASW 2326 | 2020 |
| 11 | UNIV OF HAWAII-MANOA | Brunk, W. E. | HQ-SL | Jefferies, J. T. | NGL 12-001-057 | 2026 |
| 11 | UNIV OF HAWAII-MANOA | Brunk, W. E. | HQ-SL | Jefferies, J. T. | NSR 12-001-019 | 2033 |
| 11 | UNIV OF HAWAII-MANOA | Strickland, A. T. | HQ-SM | Jefferies, J. T. | NGF 12-001-102 | 2023 |
| 11 | UNIV OF HAWAII-MANOA | Timothy, A. F. | HQ-ST | Jefferies, J. T. | NGL 12-001-011 | 2024 |
| 11 | UNIV HOUSTON-HOUSTON | Golden, R. L. | JSC | Sheldon, W. R. | NAS 9-14209 | 3450 |
| 11 | UNIV ILLINOIS-URBANA | Brunk, W. E. | HQ-SL | Dickel, J. R. | NGR 14-005-176 | 2079 |
| 11 | UNIV OF IOWA | Hall, C. F. | ARC | Van Allen, J. A. | NAS 2-6553 | 2168 |
| 11 | UNIV OF IOWA | White, C. E. | GSFC | Gurnett, D. A. | NAS 5-11279 | 2172 |
| 11 | UNIV OF IOWA | Allen, R. F., Jr. | GSFC | Van Allen, J. A. | NAS 5-20539 | 2176 |
| 11 | UNIV MARYLAND-BALT | Roman, N. G. | HQ-SA | Misner, C. W. | NGR 21-002-010 | 2297 |
| 11 | UNIV MARYLAND-COL PK | Zill, L. P. | ARC | Ponnamperuma, C. A. | NCA 2-420501 | 2310 |
| 11 | UNIV MARYLAND-COL PK | Fischel, D. | GSFC | Rosenfeld, A. | NCA 5-1 | 2312 |
| 11 | UNIV MARYLAND-COL PK | Fischel, D. | GSFC | Rosenfeld, A. | NCA 5-10 | 2317 |
| 11 | UNIV MARYLAND-COL PK | Fischel, D. | GSFC | Harger, R. | NCA 5-11 | 2318 |
| 11 | UNIV MARYLAND-COL PK | Fainberg, J. | GSFC | Kundu, M. R. | NGL 21-002-367 | 2321 |
| 11 | UNIV MARYLAND-COL PK | Clark, T. A. | GSFC | Richard, J. P. | NSG 5035 | 2350 |
| 11 | UNIV MARYLAND-COL PK | Kupperian, J. E. | GSFC | Bell, R. A. | NSG 5059 | 2354 |
| 11 | UNIV MARYLAND-COL PK | Opp, A. G. | HQ-SA | Earl, J. A. | NGR 21-002-066 | 2324 |
| 11 | UNIV MARYLAND-COL PK | Rosendhal, J. D. | HQ-SA | Griem, H. R. | NGR 21-002-073 | 2325 |
| 11 | UNIV MARYLAND-COL PK | Sofia, S. | HQ-SA | Gloeckler, G. | NGR 21-002-224 | 2328 |
| 11 | UNIV MARYLAND-COL PK | Brunk, W. E. | HQ-SL | Opik, E. J. | NGR 21-002-002 | 2322 |
| 11 | UNIV MARYLAND-COL PK | Timothy, A. F. | HQ-ST | Wilkerson, T. D. | NGR 21-002-007 | 2323 |
| 11 | UNIV MARYLAND-COL PK | Cauffman, D. P. | HQ-ST | Matthews, D. L. | NGR 21-002-386 | 2335 |
| 11 | UNIV OF MASS-AMHERST | Hall, C. F. | ARC | McGill, G. E. | NAS 2-9129 | 2534 |
| 11 | UNIV OF MASS-AMHERST | Brunk, W. E. | HQ-SL | Irvine, W. M. | NGL 22-010-023 | 2537 |
| 11 | UNIV OF MASS-AMHERST | Timothy, A. F. | HQ-ST | Strong, J. | NGL 22-010-025 | 2538 |
| 11 | UNIV MICH-ANN ARBOR | Hall, C. F. | ARC | Donahue, T. M. | NAS 2-9126 | 2552 |
| 11 | UNIV MICH-ANN ARBOR | Hall, C. F. | ARC | Nagy, A. F. | NAS 2-9130 | 2553 |
| 11 | UNIV MICH-ANN ARBOR | Kupperian, J. E. | GSFC | Donahue, T. M. | NSG 5097 | 2599 |
| 11 | UNIV MICH-ANN ARBOR | Kupperian, J. E. | GSFC | Donahue, T. M. | NSG 5117 | 2600 |

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| 11 | UNIV MICH-ANN ARBOR | Rosendhal, J. D. | HQ-SA | Hiltner, W. A. | NGR 23-005-464 | 2581 |
| 11 | UNIV MICH-ANN ARBOR | Timothy, A. F. | HQ-ST | Mohler, O. C. | NGL 23-005-275 | 2576 |
| 11 | UNIV MICH-ANN ARBOR | Timothy, A. F. | HQ-ST | Teske, R. G. | NGR 23-005-543 | 2587 |
| 11 | UNIV MICH-ANN ARBOR | Schmerling, E. R. | HQ-ST | Donahue, T. M. | NSG 7137 | 2602 |
| 11 | U MINN-MNPLS-ST PAUL | Cameron, R. M. | ARC | Ney, E. P. | NGR 24-005-267 | 2637 |
| 11 | U MINN-MNPLS-ST PAUL | Cameron, R. M. | ARC | Ney, E. P. | NSG 2014 | 2639 |
| 11 | U MINN-MNPLS-ST PAUL | White, C. E. | GSFC | Kellogg, P. J. | NAS 5-11310 | 2620 |
| 11 | U MINN-MNPLS-ST PAUL | Krome, H. O. | MSFC | Waddington, C. J. | NAS 8-27977 | 2624 |
| 11 | U MINN-MNPLS-ST PAUL | Opp, A. G. | HQ-SA | Waddington, C. J. | NGR 24-005-050 | 2632 |
| 11 | U MINN-MNPLS-ST PAUL | Roman, N. G. | HQ-SA | Luyten, W. J. | NSR 24-005-245 | 2649 |
| 11 | UNIV NEW HAMP-DURHAM | Teegarden, B. J. | GSFC | Webber, W. R. | NAS 5-11276 | 2736 |
| 11 | UNIV NEW HAMP-DURHAM | Wales, R. O. | GSFC | Arnoldy, R. L. | NAS 5-11694 | 2737 |
| 11 | UNIV NEW HAMP-DURHAM | Donley, J. L. | GSFC | Chupp, E. L. | NAS 5-23493 | 2739 |
| 11 | UNIV NEW HAMP-DURHAM | Sofia, S. | HQ-SA | Chupp, E. L. | NGL 30-002-021 | 2741 |
| 11 | UNIV NEW HAMP-DURHAM | Pellerin, C. | HQ-SA | Webber, W. R. | NGR 30-002-052 | 2742 |
| 11 | UNIV OF NEW MEXICO | Temkin, A. | GSFC | Beckel, C. L. | NCA 5-55 | 2826 |
| 11 | UNIV OF NEW MEXICO | Jones, H. P. | GSFC | Regener, V. H. | NCA 5-56 | 2827 |
| 11 | UNIV OF NEW MEXICO | Maran, S. P. | GSFC | St John, R. | NCA 5-57 | 2828 |
| 11 | UNIV OF NEW MEXICO | Bogges, N. W. | HQ-SA | Peterson, A. W. | NGR 32-004-068 | 2835 |
| 11 | UNIV OREGON-EUGENE | Cameron, R. M. | ARC | Donnelly, R. J. | NGR 38-003-034 | 3190 |
| 11 | UNIV OF PITTSBURGH | Billingham, J. | ARC | Gatewood, G. D. | NSG 2116 | 3286 |
| 11 | UNIV OF PITTSBURGH | Black, D. | ARC | Gatewood, G. D. | NSG 2117 | 3287 |
| 11 | UNIV OF PITTSBURGH | Dwornik, S. E. | HQ-SL | Hapke, B. W. | NSG 7147 | 3291 |
| 11 | UNIV OF ROCHESTER | Cameron, R. M. | ARC | Pipher, J. L. | NGR 33-019-127 | 3037 |
| 11 | UNIV OF ROCHESTER | Kupperian, J. E. | GSFC | Savedoff, M. P. | NSG 5054 | 3039 |
| 11 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | McCormick, P. T. | NCA 2-685610 | 1689 |
| 11 | UNIV OF SO FLORIDA | Roman, N. G. | HQ-SA | Wilson, R. E. | NSG 7242 | 1951 |
| 11 | UNIV OF SOUTHERN CAL | Hall, C. F. | ARC | Judge, D. L. | NAS 2-6558 | 1703 |
| 11 | UNIV OF SOUTHERN CAL | Hall, C. F. | ARC | Intriligator, D. S. | NAS 2-7969 | 1704 |
| 11 | UNIV TENNESSEE-KNOXV | Harris, J. W. | JSC | Taylor, L. A. | NGL 43-001-140 | 3339 |
| 11 | UNIV TENNESSEE-KNOXV | Timothy, A. F. | HQ-ST | Sellin, I. A. | NSG 7049 | 3349 |
| 11 | UNIV TEXAS-AUSTIN | Mason, R. H. | ARC | Ulrich, B. T. | NGR 44-012-240 | 3501 |
| 11 | UNIV TEXAS-AUSTIN | Sobieski, S. | GSFC | Tull, R. G. | NGR 44-012-260 | 3503 |
| 11 | UNIV TEXAS-AUSTIN | Sobieski, S. | GSFC | Nather, R. E. | NGR 44-012-261 | 3504 |
| 11 | UNIV TEXAS-AUSTIN | Kupperian, J. E. | GSFC | Lambert, D. L. | NSG 5005 | 3513 |
| 11 | UNIV TEXAS-AUSTIN | Kupperian, J. E. | GSFC | Parsons, S. B. | NSG 5031 | 3514 |
| 11 | UNIV TEXAS-AUSTIN | Kupperian, J. E. | GSFC | Smith, H. J. | NSG 5115 | 3515 |
| 11 | UNIV TEXAS-AUSTIN | Potter, A. E. | JSC | Barnes, T. G., III | NAS 9-12568 | 3485 |
| 11 | UNIV TEXAS-AUSTIN | Williams, J. R. | MSFC | Henize, K. | NAS 8-31459 | 3483 |
| 11 | UNIV TEXAS-AUSTIN | Rosendhal, J. D. | HQ-SA | Vanden Bout, P. A. | NGR 44-012-209 | 3498 |
| 11 | UNIV TEXAS-AUSTIN | Roman, N. G. | HQ-SA | Wheeler, J. C. | NSG 7232 | 3518 |
| 11 | UNIV TEXAS-AUSTIN | Brunk, W. E. | HQ-SL | Cogdell, J. R. | NGL 44-012-006 | 3491 |
| 11 | UNIV TEXAS-AUSTIN | Brunk, W. E. | HQ-SL | Douglas, J. N. | NGL 44-012-055 | 3493 |
| 11 | UNIV TEXAS-AUSTIN | Brunk, W. E. | HQ-SL | Mulholland, J. D. | NGR 44-012-152 | 3495 |
| 11 | UNIV TEXAS-AUSTIN | Strickland, A. T. | HQ-SL | Mulholland, J. D. | NGR 44-012-219 | 3499 |
| 11 | UNIV TEXAS-AUSTIN | Brunk, W. E. | HQ-SL | Trafton, L. M. | NGR 44-012-282 | 3507 |
| 11 | UNIV TEXAS-AUSTIN | Timothy, A. F. | HQ-ST | Bengtson, P. D. | NGR 44-012-258 | 3502 |
| 11 | UNIV TEXAS-DALLAS | Opp, A. G. | HQ-SA | Allum, F. R. | NGR 44-004-133 | 3534 |
| 11 | UNIV OF TOLEDO | Kupperian, J. E. | GSFC | Molnar, M. R. | NGR 36-010-031 | 3154 |
| 11 | UNIV OF TOLEDO | Kupperian, J. E. | GSFC | Molnar, M. R. | NSG 5006 | 3158 |
| 11 | UNIV OF TOLEDO | Rosendhal, J. D. | HQ-SA | Witt, A. N. | NSG 7041 | 3159 |
| 11 | UNIV OF TOLEDO | Roman, N. G. | HQ-SA | Molnar, M. R. | NSG 7138 | 3160 |
| 11 | UNIV OF VIRGINIA | Leckrone, D. S. | GSFC | Counselman, C. C., III | NAS 5-22346 | 3665 |
| 11 | UNIV OF VIRGINIA | Sobieski, S. | GSFC | Frederick, L. W. | NGR 47-005-204 | 3673 |
| 11 | UNIV OF VIRGINIA | Alvarez, J. M. | LARC | Singer, S. F. | NSG 1256 | 3683 |
| 11 | UNIV OF VIRGINIA | Roman, N. G. | HQ-SA | Frederick, L. W. | NGL 47-005-066 | 3668 |
| 11 | UNIV OF WASHINGTON | Underhill, A. B. | GSFC | Bohm-Vitense, E. | NAS 5-22379 | 3738 |
| 11 | UNIV OF WASHINGTON | Fellows, R. F. | HQ-SL | Hodge, P. W. | NGR 48-002-033 | 3749 |

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| 11 | UNIV OF WASHINGTON | Brunk, W. E. | HQ-SL | Jin, R. S. | NGR 48-002-142 | 3753 |
| 11 | UNIV WISC-MADISON | Leckrone, D. S. | GSFC | Anderson, C. M. | NAS 5-22349 | 3779 |
| 11 | UNIV WISC-MADISON | Sobieski, S. | GSFC | Bless, R. C. | NAS 5-23285 | 3781 |
| 11 | UNIV WISC-MADISON | Bissell, E. E., Jr. | GSFC | Code, A. D. | NGL 50-002-013 | 3789 |
| 11 | UNIV WISC-MADISON | Sobieski, S. | GSFC | Roesler, F. L. | NGR 50-002-223 | 3797 |
| 11 | UNIV WISC-MADISON | Kupperian, J. E. | GSFC | Savage, B. D. | NSG 5100 | 3801 |
| 11 | UNIV WISC-MADISON | Odell, C. R. | MSFC | Code, A. D. | NAS 8-29387 | 3786 |
| 11 | UNIV WISC-MADISON | Sofia, S. | HQ-SA | Kraushaar, W. L. | NGL 50-002-044 | 3790 |
| 11 | UNIV WISC-MADISON | Bogges, N. W. | HQ-SA | Scherb, F. | NSG 7033 | 3802 |
| 11 | UNIV WISC-MADISON | Roman, N. G. | HQ-SA | Code, A. D. | NSG 7050 | 3803 |
| 11 | UNIV WISC-MADISON | Rosendhal, J. D. | HQ-SA | Savage, B. D. | NSG 7133 | 3804 |
| 11 | VIRGINIA POLY INST | Fedor, J. V. | GSFC | Meirovitch, L. | NGR 47-004-126 | 3703 |
| 11 | VIRGINIA POLY INST | Fellows, R. F. | HQ-SL | McGee, H. A. | NGL 47-004-080 | 3698 |
| 11 | WASHINGTON TECH INST | Hobbs, R. W. | GSFC | Kasten, A. | NCA 5-40 | 1895 |
| 11 | WASHINGTON UNIVERSITY | Krome, H. O. | MSFC | Israel, M. H. | NAS 8-27976 | 2708 |
| 11 | WASHINGTON UNIVERSITY | Sofia, S. | HQ-SA | Klarman, J. | NGR 26-008-001 | 2712 |
| 11 | YALE UNIVERSITY | Sobieski, S. | GSFC | Van Altena, W. F. | NAS 5-20841 | 1823 |
| 11 | YESHIVA UNIVERSITY | Hansen, J. E. | GSFC | Cameron, A. G. | NGL 33-023-018 | 3042 |
| 12 | ADELPHI UNIVERSITY | Buell, D. A. | ARC | Steinmetz, W. J. | NSG 2088 | 2842 |
| 12 | ARIZONA STATE UNIV | Zill, L. P. | ARC | Yuen, G. U. | NCA 2-35601 | 1093 |
| 12 | ATHENS COLLEGE | Arnett, G. M. | MSFC | Workman, G. L. | NAS 8-31731 | 1014 |
| 12 | ATLANTA UNIVERSITY | Curry, J. E. | MSFC | Reed, J. L. | NSG 8019 | 1952 |
| 12 | AUBURN UNIV-AUBURN | Shackelford, B. W. | MSFC | Sforzini, R. H. | NCA 8-106 | 1025 |
| 12 | BENEDICT COLLEGE | Kent, M. I. | MSFC | Kinard, J. T. | NSG 8004 | 3303 |
| 12 | BENNETT COLLEGE-NC | Cofer, W. R., III | LARC | Greaux, A. E. | NSG 1032 | 3045 |
| 12 | BOWIE STATE COLLEGE | Gross, F. C. | GSFC | Rock, M. | NSG 5009 | 2272 |
| 12 | CALIF INST OF TECH | Wydeven, T., Jr. | ARC | Shair, F. | NSG 2154 | 1233 |
| 12 | CALIF INST OF TECH | Harris, J. W. | JSC | Silver, L. T. | NGL 05-002-187 | 1208 |
| 12 | CALIF INST OF TECH | Harris, J. W. | JSC | Wasserburg, G. J. | NGL 05-002-188 | 1209 |
| 12 | CAL STATE U-CHICO | Kourtides, D. A. | ARC | Sours, R. | NSG 2163 | 1255 |
| 12 | CAL STATE U-FULLERTN | Young, R. S. | HQ-SB | Wegner, P. A. | NGR 05-071-008 | 1257 |
| 12 | CASE WESTERN RESERVE | Quattrone, P. D. | ARC | Yeager, E. | NGR 36-027-050 | 3083 |
| 12 | CASE WESTERN RESERVE | Kohl, F. J. | LERC | Mateescu, G. D. | NSG 3009 | 3089 |
| 12 | CASE WESTERN RESERVE | Bannister, T. C. | MSFC | Ostrach, S. | NAS 8-31907 | 3080 |
| 12 | CATHOLIC UNIVERSITY | Fichtel, C. E. | GSFC | Crannell, H. | NGR 09-005-077 | 1838 |
| 12 | CATHOLIC UNIVERSITY | Stief, L. J. | GSFC | Timmons, R. B. | NGR 09-005-103 | 1840 |
| 12 | CLARKSON COL OF TECH | Serafini, T. T. | LERC | Jellinek, H. H. | NSG 3100 | 2861 |
| 12 | COLLEGE OF WM & MARY | Young, P. R. | LARC | Kranbuehl, D. E. | NSG 1095 | 3587 |
| 12 | COLLEGE OF WM & MARY | Cofer, W. R., III | LARC | Tyree, S. Y., Jr. | NSG 1204 | 3589 |
| 12 | COLUMBIA UNIVERSITY | Harris, J. W. | JSC | Ridley, W. I. | NGR 33-008-199 | 2883 |
| 12 | COPPIN STATE COLLEGE | Webster, W. H., Jr. | GSFC | McDermott, P. P. | NSG 5051 | 2275 |
| 12 | CORNELL UNIVERSITY | Young, R. S. | HQ-SB | Sagan, C. E. | NGR 33-010-101 | 2913 |
| 12 | ELIZABETH CITY ST U | Conway, E. J. | LARC | Chatterjee, K. K. | NSG 1179 | 3052 |
| 12 | FISK UNIVERSITY | Parnell, T. A. | MSFC | Mickens, R. E. | NSG 8035 | 3319 |
| 12 | HAMPTON INSTITUTE | Jachimowski, C. J. | LARC | Hunter, C. E. | NSG 1086 | 3598 |
| 12 | HARVARD UNIVERSITY | Harris, J. W. | JSC | Hays, J. F. | NGL 22-007-247 | 2395 |
| 12 | HOWARD UNIVERSITY | Stief, L. J. | GSFC | Jackson, W. M. | NSG 5071 | 1890 |
| 12 | INDIANA U-BLOOMINGTN | Zill, L. P. | ARC | Hayes, J. M. | NCA 2-335501 | 2105 |
| 12 | INDIANA U-BLOOMINGTN | Zill, L. P. | ARC | Hayes, J. M. | NCA 2-335601 | 2106 |
| 12 | INDIANA U-BLOOMINGTN | Harris, J. W. | JSC | Meinschein, W. G. | NGR 15-003-105 | 2110 |
| 12 | KENT STATE UNIV-KENT | Quattrone, P. D. | ARC | Madey, R. | NSG 2013 | 3107 |
| 12 | KENTUCKY STATE UNIV | Patterson, W. J. | MSFC | Marano, G. A. | NSG 8008 | 2223 |
| 12 | LEHIGH UNIVERSITY | Harris, J. W. | JSC | Goldstein, J. I. | NGR 39-007-056 | 3219 |
| 12 | LEHIGH UNIVERSITY | Cliff, W. C. | MSFC | Poehlein, G. W. | NCA 8-123 | 3215 |
| 12 | MASS INST OF TECH | Quattrone, P. D. | ARC | Reid, R. C. | NGR 22-009-723 | 2473 |
| 12 | MASS INST OF TECH | Quattrone, P. D. | ARC | Steinfeld, J. I. | NGR 22-009-766 | 2479 |
| 12 | MASS INST OF TECH | Quattrone, P. D. | ARC | Modell, M. | NGR 22-009-799 | 2485 |
| 12 | MASS INST OF TECH | Harris, J. W. | JSC | Burns, R. G. | NGR 22-009-551 | 2466 |

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| 12 | MASS INST OF TECH | Hess, R. V. | LARC | Wrighton, M. S. | NSG 1048 | 2491 |
| 12 | MASS INST OF TECH | Young, R. S. | HQ-SB | Rich, A. | NGR 22-009-277 | 2459 |
| 12 | MOREHOUSE COLLEGE | Stephens, J. B. | MSFC | Gales, J. N. | NGL 11-008-001 | 2002 |
| 12 | MOREHOUSE COLLEGE | Clemons, J. M. | MSFC | Frazier, D. O. | NSG 8030 | 2006 |
| 12 | MORRIS BROWN COLLEGE | Patterson, W. J. | MSFC | Weaver, F. | NSG 8027 | 2008 |
| 12 | NM HIGHLANDS UNIV | Bryan, C. J. | KSC | Clark, R. D. | NSG 804 | 2795 |
| 12 | NO DAKOTA STATE UNIV | Hall, L. B. | HQ-SB | Hill, T. W. | NGR 35-001-012 | 3076 |
| 12 | OAKWOOD COLLEGE | Kent, M. I. | MSFC | Richardson, D. | NSG 8017 | 1033 |
| 12 | OLD DOMINION UNIV | Johnston, N. J. | LARC | Williams, R. L. | NGL 47-003-008 | 3608 |
| 12 | PENN STATE U-UNIV PK | Slemp, W. S. | LARC | Allcock, H. R. | NSG 1141 | 3249 |
| 12 | POLY INST OF NY | Zill, L. P. | ARC | Pearce, E. M. | NCA 2-595501 | 2959 |
| 12 | POLY INST OF NY | Fohlen, G. M. | ARC | Pearce, E. M. | NSG 2147 | 2967 |
| 12 | POLY INST OF NY | Young, R. S. | HQ-SB | Eirich, F. R. | NGR 33-006-070 | 2962 |
| 12 | POMONA COLLEGE | Williams, T. S., Jr. | LARC | Baird, A. K. | NAS 1-11854 | 1271 |
| 12 | PRINCETON UNIVERSITY | Billman, K. W. | ARC | Bottoms, W. R. | NSG 2108 | 2784 |
| 12 | PRINCETON UNIVERSITY | Kelsall, T. N. | GSFC | Spitzer, L., Jr. | NAS 5-22482 | 2756 |
| 12 | PRINCETON UNIVERSITY | Dunning, J. W., Jr. | LERC | Glassman, I. | NGR 31-001-312 | 2776 |
| 12 | RENSSELAER POLY-NY | Young, R. S. | HQ-SB | Ferris, J. P. | NGR 33-018-148 | 2978 |
| 12 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Orenberg, J. B. | NCA 2-660410 | 1276 |
| 12 | SAN FRAN STATE UNIV | Young, R. S. | HQ-SB | Kenyon, D. H. | NSG 7234 | 1286 |
| 12 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Neptune, J. | NCA 2-675409 | 1292 |
| 12 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Grilione, P. | NCA 2-675608 | 1314 |
| 12 | SAN JOSE STATE UNIV | Wydeven, T., Jr. | ARC | Spitze, L. A. | NGR 05-046-011 | 1324 |
| 12 | SAN JOSE STATE UNIV | Wydeven, T., Jr. | ARC | Spitze, L. A. | NSG 2066 | 1326 |
| 12 | SAN JOSE STATE UNIV | Kourtides, D. A. | ARC | Neptune, J. A. | NSG 2093 | 1328 |
| 12 | SAN JOSE STATE UNIV | Bolub, M. A. | ARC | Neptune, J. A. | NSG 2111 | 1330 |
| 12 | SHAW UNIVERSITY | Bell, V. L., Jr. | LARC | Chatterji, A. K. | NSG 1033 | 3073 |
| 12 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Loew, G. B. | NCA 2-745506 | 1355 |
| 12 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Pound, G. M. | NCA 2-745511 | 1359 |
| 12 | STANFORD UNIVERSITY | Chang, S. | ARC | Loew, G. H. | NGR 05-020-405 | 1397 |
| 12 | STANFORD UNIVERSITY | Wydeven, T., Jr. | ARC | Brauman, J. I. | NSG 2161 | 1433 |
| 12 | STATE UNIV NY-BUFFAL | Harris, J. W. | JSC | Cadenhead, D. A. | NGL 33-183-013 | 3000 |
| 12 | STATE UNIV NY-BUFFAL | Young, R. S. | HQ-SB | Danielli, J. F. | NGR 33-015-002 | 3001 |
| 12 | STATE U NY-STONY BRK | Harris, J. W. | JSC | Schaeffer, O. A. | NGL 33-015-174 | 3009 |
| 12 | STATE U NY-STONY BRK | Young, R. S. | HQ-SB | Owen, T. | NGR 33-015-169 | 3015 |
| 12 | TEXAS A&M UNIVERSITY | Zill, L. P. | ARC | Flamm, D. | NCA 2-773501 | 3432 |
| 12 | TEXAS A&M UNIVERSITY | Young, R. S. | HQ-SB | Fendler, J. H. | NSG 7037 | 3439 |
| 12 | UNIV OF ALBUQUERQUE | Fordyce, J. S. | LERC | Urzendowski, R. M. | NSG 3092 | 2813 |
| 12 | UNIV ALA-BIRMINGHAM | Young, R. S. | HQ-SB | Lacey, J. C., Jr. | NGR 01-010-001 | 1040 |
| 12 | UNIV OF ARIZONA | Harris, J. W. | JSC | Drake, M. J. | NGR 03-002-388 | 1148 |
| 12 | UNIV CALIF-BERKELEY | Riccitiello, S. R. | ARC | Williamson, R. B. | NSG 2084 | 1496 |
| 12 | UNIV CALIF-BERKELEY | Harris, J. W. | JSC | Price, P. B. | NGL 05-003-410 | 1473 |
| 12 | UNIV CALIF-BERKELEY | Young, R. S. | HQ-SB | Jukes, J. H. | NGR 05-003-460 | 1482 |
| 12 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Douglass, D. L. | NCA 2-390402 | 1546 |
| 12 | UNIV CALIF-L ANGELES | Harris, J. W. | JSC | Wasson, J. T. | NGL 05-007-367 | 1560 |
| 12 | UNIV CALIF-SAN DIEGO | Harris, J. W. | JSC | Arnold, J. R. | NGL 05-009-148 | 1613 |
| 12 | UNIV CALIF-SAN DIEGO | Harris, J. W. | JSC | Marti, K. | NGL 05-009-150 | 1614 |
| 12 | UNIV CALIF-SAN DIEGO | Young, R. S. | HQ-SB | Miller, S. L. | NGR 05-009-218 | 1627 |
| 12 | UNIV OF CHICAGO | Harris, J. W. | JSC | Clayton, R. N. | NGL 14-001-169 | 2060 |
| 12 | UNIV OF DENVER | Quattrone, P. D. | ARC | Ross, L. W. | NGR 06-004-125 | 1812 |
| 12 | UNIV OF FLORIDA | Schell, J. T. | MSFC | Patterson, E. P. | NAS 8-20247 | 1917 |
| 12 | UNIV OF HAWAII-MANOA | Young, R. S. | HQ-SB | Folsome, C. E. | NGR 12-001-109 | 2028 |
| 12 | UNIV HOUSTON-HOUSTON | Young, R. S. | HQ-SB | Becker, R. S. | NGR 44-005-091 | 3466 |
| 12 | UNIV ILLINOIS-URBANA | Young, R. S. | HQ-SB | Woese, C. R. | NSG 7044 | 2096 |
| 12 | UNIV OF KENTUCKY | Gordon, S. | LERC | Conger, W. L. | NGR 18-001-086 | 2230 |
| 12 | UNIV MARYLAND-COL PK | Zill, L. P. | ARC | Ponnamperuma, C. A. | NCA 2-420403 | 2309 |
| 12 | UNIV MARYLAND-COL PK | Stief, L. J. | GSFC | Ponnamperuma, C. A. | NAS 5-20834 | 2301 |
| 12 | UNIV MARYLAND-COL PK | Pellett, G. L. | LARC | Davis, D. D. | NSG 1031 | 2343 |

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| 12 | UNIV MARYLAND-COL PK | Young, R. S. | HQ-SB | Ponnamperuma, C. A. | NGR 21-002-317 | 2332 |
| 12 | UNIV OF MIAMI | Young, R. S. | HQ-SB | Fox, S. W. | NGR 10-007-008 | 1942 |
| 12 | UNIV MICH-ANN ARBOR | King, J., Jr. | HQ-SU | Cicerone, R. J. | NSG 7187 | 2603 |
| 12 | UNIV MO-KANSAS CITY | Ginoza, H. S. | ARC | Millich, F. | NGR 26-001-018 | 2695 |
| 12 | UNIV OF NEW MEXICO | Harris, J. W. | JSC | Keil, K. | NGL 32-004-063 | 2831 |
| 12 | UNIV OF NEW MEXICO | Williams, T. S., Jr. | LARC | Keil, K. | NAS 1-11855 | 2814 |
| 12 | UNIV OF PITTSBURGH | Baker, C. E. | LERC | Kaufman, F. | NGR 39-011-161 | 3284 |
| 12 | UNIV OF PITTSBURGH | Fordyce, J. S. | LERC | Liu, C. C. | NSG 3002 | 3288 |
| 12 | UNIV OF PITTSBURGH | O'Donnell, P. M. | LERC | Liv, C. C. | NSG 3010 | 3289 |
| 12 | UNIV SAN FRANCISCO | Kourtides, D. A. | ARC | Hilado, C. J. | NSG 2039 | 1671 |
| 12 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Sweeney, M. A. | NCA 2-685502 | 1679 |
| 12 | UNIV SO MISSISSIPPI | Johnston, N. J. | LARC | Thames, S. F. | NGR 25-005-005 | 2682 |
| 12 | U TENNESSEE-MEMPHIS | Kaplan, H. L. | JSC | Austian, J. | NAS 9-14918 | 3351 |
| 12 | UNIV OF UTAH | Patterson, W. J. | MSFC | Andrade, J. D. | NAS 8-30253 | 3561 |
| 12 | UNIV OF VERMONT | Young, R. S. | HQ-SB | Thanassi, J. W. | NSG 7021 | 3579 |
| 12 | UNIV WISC-MADISON | Holton, E. M. | ARC | Deluca, H. F. | NAS 2-8752 | 3773 |
| 12 | UTAH STATE UNIV | King, J., Jr. | HQ-SU | Moore, W. M. | NSG 7206 | 3577 |
| 12 | VIRGINIA COMNWLTH U | Bell, V. L., Jr. | LARC | Stump, B. L. | NGR 47-002-041 | 3687 |
| 12 | VIRGINIA POLY INST | Johnston, N. J. | LARC | Wolfe, J. F. | NSG 1064 | 3708 |
| 12 | VIRGINIA POLY INST | Young, P. R. | LARC | Mason, J. G. | NSG 1085 | 3710 |
| 12 | VIRGINIA POLY INST | Progar, D. J. | LARC | Wightman, J. P. | NSG 1124 | 3715 |
| 12 | VIRGINIA POLY INST | Pellett, G. L. | LARC | Wightman, J. P. | NSG 1195 | 3717 |
| 12 | VIRGINIA POLY INST | St Clair, T. L. | LARC | Ogliaruso, M. A. | NSG 1286 | 3728 |
| 12 | WILBERFORCE UNIV | Hsu, L. C. | LERC | Stickney, P. B. | NSG 3067 | 3162 |
| 13 | ALABAMA A&M UNIV | Kurtz, R. L. | MSFC | Lee, C. T. | NSG 8011 | 1005 |
| 13 | ALABAMA A&M UNIV | Gross, K. W. | MSFC | Saha, H. | NSG 8022 | 1007 |
| 13 | ALABAMA A&M UNIV | Bannister, T. C. | MSFC | Lal, R. B. | NSG 8033 | 1008 |
| 13 | ALABAMA A&M UNIV | Jeffreys, H. B. | MSFC | Murty, S. S. | NSG 8037 | 1009 |
| 13 | ARIZONA STATE UNIV | Morris, J. F. | LERC | Jacobson, D. L. | NSG 7019 | 1097 |
| 13 | ATHENS COLLEGE | Jex, D. W. | MSFC | McNutt, R. C. | NAS 8-28058 | 1011 |
| 13 | ATHENS COLLEGE | Zwiener, J. M. | MSFC | McNutt, R. C. | NAS 8-30561 | 1012 |
| 13 | ATHENS COLLEGE | Moore, W. W., Jr. | MSFC | Martin, A. M., III | NAS 8-30880 | 1013 |
| 13 | BALL STATE UNIVERSTY | Hastings, L. J. | MSFC | Cosby, R. M. | NCA 8-101 | 2098 |
| 13 | BALL STATE UNIVERSTY | Hastings, L. J. | MSFC | Cosby, R. M. | NCA 8-103 | 2099 |
| 13 | BOSTON COLLEGE | Cauffman, D. P. | HQ-ST | Eather, R. H. | NSG 7190 | 2372 |
| 13 | BOWIE STATE COLLEGE | Caruso, A. J. | GSFC | Bhatia, M. S. | NGR 21-027-010 | 2270 |
| 13 | BRIGHAM YOUNG UNIV | Hall, C. F. | ARC | Jones, D. E. | NAS 2-7358 | 3551 |
| 13 | BRIGHAM YOUNG UNIV | Dyal, P. | ARC | Jones, D. E. | NGR 45-001-040 | 3555 |
| 13 | BRIGHAM YOUNG UNIV | Roth, J. R. | LERC | Gardner, A. L. | NSG 3068 | 3556 |
| 13 | BROOKLYN COLLEGE | Wilson, J. W. | LARC | Franco, V. | NSG 1166 | 2846 |
| 13 | BROWN UNIVERSITY | Walker, G. H. | LARC | Loferski, J. J. | NGR 40-002-093 | 3296 |
| 13 | BRYN MAWR COLLEGE | Harris, J. W. | JSC | Crawford, M. L. | NSG 9005 | 3196 |
| 13 | CALIF INST OF TECH | Davis, M. A. | GSFC | Stone, E. C. | NAS 5-11066 | 1189 |
| 13 | CALIF INST OF TECH | Gallagher, W. F. | GSFC | Stone, L. C. | NAS 5-20721 | 1191 |
| 13 | CALIF INST OF TECH | Harris, J. W. | JSC | Epstein, S. | NGL 05-002-190 | 1210 |
| 13 | CALIF INST OF TECH | Harris, J. W. | JSC | Albee, A. L. | NGL 05-002-338 | 1213 |
| 13 | CALIF INST OF TECH | Harris, J. W. | JSC | Tombrello, T. A. | NGR 05-002-333 | 1229 |
| 13 | CALIF INST OF TECH | Timothy, A. F. | HQ-ST | Zirin, H. | NGR 05-002-345 | 1231 |
| 13 | CARNEGIE-MELLON UNIV | Walker, G. H. | LARC | Feucht, D. L. | NGR 39-087-021 | 3199 |
| 13 | CASE WESTERN RESERVE | McAvoy, N. | GSFC | Pao, Y. H. | NGR 36-027-068 | 3087 |
| 13 | CATHOLIC UNIVERSITY | Dennis, B. R. | GSFC | Werntz, C. | NSG 5066 | 1841 |
| 13 | CATHOLIC UNIVERSITY | Reinhardt, V. S. | GSFC | Major, F. G. | NSG 5107 | 1842 |
| 13 | CATHOLIC UNIVERSITY | McAvoy, N. | GSFC | Lally, J. | NSG 5111 | 1843 |
| 13 | CATHOLIC UNIVERSITY | Taylor, W. W. | HQ-ST | Whang, Y. C. | NGR 09-005-063 | 1837 |
| 13 | CITY COLLEGE OF N Y | Byrns, Z. H. | JSC | Pierson, W. J. | NAS 9-13642 | 2849 |
| 13 | CITY COLLEGE OF N Y | Thom, K. | HQ-NS | Tchen, C. M. | NGL 33-013-034 | 2851 |
| 13 | COLLEGE OF WM & MARY | Breckenridge, R. A. | LARC | Moriarity, J. A. | NSG 1089 | 3586 |
| 13 | COLORADO STATE UNIV | Zill, L. P. | ARC | She, C. Y. | NCA 2-165503 | 1735 |

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| 13 | COLORADO STATE UNIV | Zili, L. P. | ARC | Sandborn, V. A. | NCA 2-165604 | 1737 |
| 13 | COLORADO STATE UNIV | Harris, J. W. | JSC | Patton, C. E. | NSG 9037 | 1757 |
| 13 | COLORADO STATE UNIV | Brown, G. V. | LERC | Etters, R. D. | NGR 06-002-159 | 1746 |
| 13 | COLORADO STATE UNIV | Chubb, D. L. | LERC | Collins, G. J. | NSG 3060 | 1752 |
| 13 | COLORADO STATE UNIV | Theman, E. R. | LERC | Kaufman, H. R. | NSG 3086 | 1753 |
| 13 | COLUMBIA UNIVERSITY | Harris, J. W. | JSC | Horai, K. | NGR 33-008-177 | 2878 |
| 13 | CORNELL UNIVERSITY | Findlay, J. A. | GSFC | Walker, J. C. | NAS 5-20705 | 2902 |
| 13 | CORNELL UNIVERSITY | Conrath, B. J. | GSFC | Gierasch, P. J. | NAS 5-23236 | 2904 |
| 13 | CORNELL UNIVERSITY | Harris, J. W. | JSC | Gold, T. | NGR 33-010-137 | 2915 |
| 13 | CORNELL UNIVERSITY | Allario, F. | LARC | Cool, T. A. | NGL 33-010-064 | 2908 |
| 13 | CORNELL UNIVERSITY | Jobson, D. J. | LARC | Harwit, M. O. | NSG 1263 | 2926 |
| 13 | CORNELL UNIVERSITY | Brown, G. V. | LERC | Krumhansl, J. A. | NGR 33-010-188 | 2922 |
| 13 | CORNELL UNIVERSITY | Taylor, W. W. | HQ-ST | Farley, D. T. | NGR 33-010-161 | 2918 |
| 13 | CORNELL UNIVERSITY | Schmerling, E. R. | HQ-ST | Walker, J. C. | NSG 7104 | 2932 |
| 13 | CORNELL UNIVERSITY | Schmerling, E. R. | HQ-ST | Auer, P. L. | NSG 7135 | 2934 |
| 13 | CORNELL UNIVERSITY | Schmerling, E. R. | HQ-ST | Morgan, M. G. | NGR 30-001-041 | 2733 |
| 13 | DARTMOUTH COLLEGE | Aiken, A. C. | GSFC | Helmy, E. M. | NGR 08-002-005 | 1829 |
| 13 | DREXEL UNIVERSITY | Nelson, E. D. | GSFC | House, F. B. | NAS 5-22946 | 3205 |
| 13 | FAIRLEIGH-DICKNSON U | Harris, J. W. | JSC | Adams, J. B. | NGL 31-006-011 | 2746 |
| 13 | FEDERAL CITY COLLEGE | McDonald, F. B. | GSFC | Whiteside, H. | NGR 09-050-001 | 1847 |
| 13 | FISK UNIVERSITY | Kroes, R. L. | MSFC | Silberman, E. | NGR 43-021-002 | 3317 |
| 13 | FISK UNIVERSITY | Parnell, T. A. | MSFC | Neugebauer, G. | NSG 8007 | 3318 |
| 13 | FLORIDA A&M UNIV | Trajmar, S. | JPL | Jones, H. W. | NSG 901 | 1900 |
| 13 | FLORIDA INST OF TECH | Langel, R. A. | GSFC | Jin, R. S. | NSG 5038 | 1905 |
| 13 | FLORIDA STATE UNIV | Hardin, J. C. | LARC | Tam, C. K. | NSG 1021 | 1910 |
| 13 | GEORGIA INST OF TECH | Posey, J. W. | LARC | Hadden, W. J., Jr. | NSG 1047 | 1986 |
| 13 | GEORGIA INST OF TECH | Preisser, J. S. | LARC | Pierce, A. D. | NSG 1307 | 1989 |
| 13 | GEORGIA INST OF TECH | Huff, R. G. | LERC | Strahle, W. C. | NSG 3015 | 1991 |
| 13 | GEORGIA INST OF TECH | Kerr, J. H. | MSFC | Callen, W. R. | NAS 8-30246 | 1969 |
| 13 | GEORGIA INST OF TECH | Kerr, J. H. | MSFC | Callen, W. R. | NAS 8-31193 | 1975 |
| 13 | GEORGIA INST OF TECH | Smith, H. | MSFC | Walsh, J. R. | NAS 8-31344 | 1976 |
| 13 | GEORGIA INST OF TECH | Thom, K. | HQ-RR | Williams, R. J. | NSG 7067 | 1997 |
| 13 | GRAMBLING STATE UNIV | Kroes, R. L. | MSFC | Murty, A. N. | NGR 19-011-016 | 2240 |
| 13 | GRAMBLING STATE UNIV | Chappell, C. R. | MSFC | Cummings, W. D. | NSG 8034 | 2241 |
| 13 | GRAMBLING STATE UNIV | Cauffman, D. P. | HQ-ST | Cummings, W. D. | NGR 19-011-007 | 2238 |
| 13 | HAMPTON INSTITUTE | Singh, J. J. | LARC | Han, K. S. | NGR 47-020-008 | 3596 |
| 13 | HARVARD UNIVERSITY | McAvoy, N. | GSFC | Bloembergen, N. | NGL 22-007-117 | 2393 |
| 13 | HARVARD UNIVERSITY | Snoddy, W. C. | MSFC | Vaiana, G. S. | NAS 8-31374 | 2388 |
| 13 | HARVARD UNIVERSITY | Bordelon, C. S. | MSFC | Noyes, R. W. | NAS 8-31549 | 2389 |
| 13 | HARVARD UNIVERSITY | Timothy, A. F. | HQ-ST | Parkinson, W. H. | NGL 22-007-006 | 2391 |
| 13 | HARVARD UNIVERSITY | Timothy, A. F. | HQ-ST | Reeves, E. M. | NSG 7175 | 2411 |
| 13 | HOWARD UNIVERSITY | Yin, L. I. | GSFC | Tsang, T. | NGR 09-011-057 | 1883 |
| 13 | HOWARD UNIVERSITY | Schafer, C. F. | MSFC | Ukanwa, A. O. | NAS 8-30252 | 1876 |
| 13 | ILL INST OF TECH | Thom, K. | HQ-RR | Weinstein, H. | NSG 7039 | 2037 |
| 13 | IOWA STATE UNIV | Zill, L. P. | ARC | Levenson, L. L. | NCA 2-340603 | 2159 |
| 13 | IOWA STATE UNIV | Zill, L. P. | ARC | Anderson, D. A. | NCA 2-340604 | 2160 |
| 13 | JOHNS HOPKINS UNIV | Taylor, W. W. | HQ-ST | Krimigis, S. M. | NSG 7055 | 2292 |
| 13 | LEHIGH UNIVERSITY | Harris, J. W. | JSC | Sclar, C. B. | NGR 39-007-064 | 3221 |
| 13 | LA STATE U-BAT ROUGE | Ormes, J. F. | GSFC | Huggett, R. W. | NAS 5-20883 | 2242 |
| 13 | LA STATE U-BAT ROUGE | Hamby, H. G. | MSFC | Farmer, R. C. | NAS 8-30380 | 2243 |
| 13 | MASS INST OF TECH | Davis, M. A. | GSFC | Bridge, H. S. | NAS 5-11062 | 2423 |
| 13 | MASS INST OF TECH | McElroy, J. H. | GSFC | Javan, A. | NGR 22-009-741 | 2478 |
| 13 | MASS INST OF TECH | Harris, J. W. | JSC | Simmons, M. G. | NGR 22-009-540 | 2465 |
| 13 | MASS INST OF TECH | Weinberg, I. | LERC | Gatos, H. C. | NSG 3017 | 2505 |
| 13 | MASS INST OF TECH | Reinmann, J. J. | LERC | Lax, B. | NSG 3088 | 2512 |
| 13 | MASS INST OF TECH | Decker, R. | MSFC | Boyd, P. | NAS 8-30301 | 2433 |
| 13 | MASS INST OF TECH | Dalins, I. | MSFC | Gatos, H. C. | NGL 22-009-125 | 2449 |
| 13 | MASS INST OF TECH | Hall, H. | HQ-MT | Chapman, P. K. | NGR 22-009-735 | 2477 |

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| 13 | MASS INST OF TECH | Opp, A. G. | HQ-SA | Clark, G. W. | NGR 22-009-785 | 2482 |
| 13 | MASS INST OF TECH | Schmerling, E. R. | HQ-ST | Bridge, H. S. | NGL 22-009-015 | 2445 |
| 13 | MICHIGAN STATE UNIV | Unavailable | LARC | Unavailable | NAS 1-6860 | 2543 |
| 13 | MISSISSIPPI STATE U | Hollis, B. R., Jr. | MSFC | Gassaway, J. D. | NAS 8-26749 | 2659 |
| 13 | MOREHOUSE COLLEGE | Shriver, E. L. | MSFC | Spight, C. | NSG 8014 | 2004 |
| 13 | MOREHOUSE COLLEGE | Stone, N. H. | MSFC | Turner, J. M. | NSG 8020 | 2005 |
| 13 | MOREHOUSE COLLEGE | Williams, J. R. | MSFC | Spight, C. | NSG 8039 | 2007 |
| 13 | NEW MEX ST U-LAS CR | Salzman, J. A. | LERC | Armstrong, R. L. | NSG 3069 | 2812 |
| 13 | NEW YORK UNIVERSITY | Schneck, P. B. | GSFC | Schwartz, J. T. | NSG 5032 | 2953 |
| 13 | NEW YORK UNIVERSITY | Rosendahl, J. D. | HQ-SA | Glassgold, A. E. | NGR 33-016-196 | 2946 |
| 13 | NO CAR A&T STATE U | Allario, F. | LARC | Yu, C. | NSG 1147 | 3054 |
| 13 | N CAR CENTRAL UNIV | McAvoy, N. | GSFC | Dutta, J. M. | NSG 5120 | 3056 |
| 13 | NO CAROLINA STATE U | Hohl, F. | LARC | Hassan, H. A. | NSG 1058 | 3064 |
| 13 | NO CAROLINA STATE U | Miller, W. E. | LARC | Littlejohn, M. A. | NSG 1202 | 3069 |
| 13 | NO CAROLINA STATE U | Mayes, W. H. | LARC | Hart, F. D. | NSG 1205 | 3070 |
| 13 | NO CAROLINA STATE U | Thom, K. | HQ-RR | Bennett, W. H. | NGL 34-002-017 | 3059 |
| 13 | NORTHWESTERN UNIV | Lad, R. A. | LERC | Waber, J. T. | NGL 14-007-081 | 2042 |
| 13 | NORTHWESTERN UNIV | Behrendt, D. R. | LERC | Waber, J. T. | NGR 14-007-131 | 2045 |
| 13 | OHIO UNIVERSITY | Bonavito, N. | GSFC | Tanuka, T. | NAS 5-20885 | 3132 |
| 13 | OLD DOMINION UNIV | Hillard, M. E., Jr. | LARC | Bandy, A. R. | NAS 1-13820 | 3606 |
| 13 | OLD DOMINION UNIV | Outlaw, R. A. | LARC | Brock, F. J. | NGR 47-003-043 | 3612 |
| 13 | OLD DOMINION UNIV | Phillips, D. H. | LARC | Ake, R. L. | NGR 47-003-048 | 3613 |
| 13 | OLD DOMINION UNIV | Wilson, J. W. | LARC | Khandelwal, G. S. | NGR 47-003-078 | 3616 |
| 13 | OLD DOMINION UNIV | Hohl, F. | LARC | Harries, W. L. | NSG 1022 | 3620 |
| 13 | OLD DOMINION UNIV | Melfi, L. T., Jr. | LARC | Brock, F. J. | NSG 1271 | 3652 |
| 13 | OREGON STATE UNIV | Harris, J. W. | JSC | Schmitt, R. A. | NGL 38-002-039 | 3183 |
| 13 | PAINE COLLEGE | Bannister, T. C. | MSFC | Owais, M. | NSG 8002 | 2010 |
| 13 | PENN STATE U-UNIV PK | Schmerling, E. R. | HQ-ST | Ross, W. J. | NGL 39-009-002 | 3236 |
| 13 | PENN STATE U-UNIV PK | Schmerling, E. R. | HQ-ST | Nisbet, J. S. | NGL 39-009-003 | 3237 |
| 13 | PENN STATE U-UNIV PK | Schmerling, E. R. | HQ-ST | Kendall, B. R. | NGL 39-009-032 | 3240 |
| 13 | PENN STATE U-UNIV PK | Schmerling, E. R. | HQ-ST | Hale, L. C. | NGR 39-009-218 | 3245 |
| 13 | POLY INST OF NY | Will, H. A. | LERC | Lederman, S. | NSG 3108 | 2968 |
| 13 | POLY INST OF NY | Taylor, W. W. | HQ-ST | Gross, S. H. | NGR 33-006-047 | 2960 |
| 13 | PRINCETON UNIVERSITY | Hunter, W. W., Jr. | LARC | Miles, R. B. | NSG 1070 | 2778 |
| 13 | PRINCETON UNIVERSITY | Thom, K. | HQ-RR | Layton, J. P. | NGR 31-001-328 | 2777 |
| 13 | PRINCETON UNIVERSITY | Strickland, A. T. | HQ-SL | Dicke, R. H. | NGR 31-001-202 | 2770 |
| 13 | PURDUE UNIVERSITY | Harris, J. W. | JSC | Taylor, L. A. | NGL 15-005-175 | 2124 |
| 13 | PURDUE UNIVERSITY | Harris, J. W. | JSC | Meyer, H. O. | NGR 15-005-157 | 2128 |
| 13 | RENSSELAER POLY-NY | Reinmann, J. J. | LERC | Hickok, R. L., Jr. | NSG 3057 | 2984 |
| 13 | RICE UNIVERSITY | Taylor, H. A., Jr. | GSFC | Cloutier, P. A. | NAS 5-23338 | 3383 |
| 13 | RICE UNIVERSITY | Hudson, R. D. | JSC | Stebbins, R. F. | NGR 44-006-156 | 3394 |
| 13 | RICE UNIVERSITY | Lad, R. A. | LERC | Rorschach, H. E. | NGL 44-006-001 | 3390 |
| 13 | RICE UNIVERSITY | Roberts, W. T. | MSFC | Anderson, H. R., Jr. | NAS 8-31679 | 3385 |
| 13 | RICE UNIVERSITY | Berge, L. H. | MSFC | Margrave, J. L. | NAS 8-32030 | 3386 |
| 13 | RICE UNIVERSITY | Cauffman, D. P. | HQ-ST | Michel, F. C. | NGL 44-006-012 | 3391 |
| 13 | RICE UNIVERSITY | Cauffman, D. P. | HQ-ST | Dessler, A. J. | NGR 44-006-137 | 3393 |
| 13 | RUTGERS UNIV-NEWARK | Beach, H. L., Jr. | LARC | Johnson, J. A., III | NSG 1314 | 2793 |
| 13 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Plachy, W. Z. | NCA 2-660505 | 1281 |
| 13 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Anderson, D. | NCA 2-675514 | 1303 |
| 13 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Tucker, A. B. | NCA 2-675602 | 1309 |
| 13 | SO CAROLINA ST COL | Urban, E. W. | MSFC | Payne, J. E. | NSG 8021 | 3308 |
| 13 | SO UNIV-BATON ROUGE | Trenkle, J. J. | MSFC | Scott, R. L., Jr. | NSG 8016 | 2254 |
| 13 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Kline, S. J. | NCA 2-745602 | 1371 |
| 13 | STANFORD UNIVERSITY | Hickey, D. H. | ARC | Karamcheti, K. | NGR 05-020-676 | 1411 |
| 13 | STANFORD UNIVERSITY | Billman, K. W. | ARC | Bershadar, D. | NSG 2035 | 1421 |
| 13 | STANFORD UNIVERSITY | Billman, K. W. | ARC | Mitchner, M. | NSG 2050 | 1423 |
| 13 | STANFORD UNIVERSITY | Davis, M. A. | GSFC | Helliwell, R. A. | NAS 5-20871 | 1341 |
| 13 | STANFORD UNIVERSITY | Hutchby, J. A. | LARC | Pearson, G. L. | NSG 1201 | 1417 |

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| 13 | STANFORD UNIVERSITY | Bass, B. G. | MSFC | Walker, A. B., Jr. | NAS 8-31571 | 1346 |
| 13 | STANFORD UNIVERSITY | Roberts, W. T. | MSFC | Da Rosa, A. V. | NAS 8-31769 | 1347 |
| 13 | STANFORD UNIVERSITY | Potter, R. A. | MSFC | Fairbank, W. M. | NGR 05-020-019 | 1395 |
| 13 | STANFORD UNIVERSITY | Thom, K. | HQ-RR | Pantell, R. H. | NSG 7110 | 1440 |
| 13 | STANFORD UNIVERSITY | Weinberg, I. | HQ-RW | Little, W. A. | NGL 05-020-242 | 1386 |
| 13 | STANFORD UNIVERSITY | Schmerling, E. R. | HQ-ST | Helliwell, R. A. | NGL 05-020-008 | 1381 |
| 13 | STANFORD UNIVERSITY | Cauffman, D. P. | HQ-ST | Crawford, F. W. | NGL 05-020-176 | 1385 |
| 13 | STANFORD UNIVERSITY | Timothy, A. F. | HQ-ST | Sturrock, P. A. | NGL 05-020-272 | 1388 |
| 13 | STANFORD UNIVERSITY | Berko, F. W. | HQ-ST | Da Rosa, A. V. | NGR 05-020-001 | 1393 |
| 13 | STATE UNIV NY-ALBANY | Gary, G. A. | MSFC | Weinberg, J. L. | NAS 8-30251 | 2989 |
| 13 | STATE UNIV NY-BUFFAL | Morris, J. F. | LERC | Shaw, D. T. | NSG 7071 | 3003 |
| 13 | STATE U NY-STONY BRK | Boese, R. W. | ARC | Lutz, B. L. | NCA 2-760601 | 3006 |
| 13 | STATE U NY-STONY BRK | Mangus, J. D. | GSFC | Stroke, G. W. | NGR 33-015-196 | 3017 |
| 13 | STATE U NY-STONY BRK | Harris, J. W. | JSC | Bence, A. E. | NGL 33-015-130 | 3008 |
| 13 | STATE U NY-STONY BRK | Harris, J. W. | JSC | Papike, J. J. | NSG 9044 | 3026 |
| 13 | TALLADEGA COLLEGE | Dalins, I. | MSFC | Breecher, J. | NGR 01-007-009 | 1034 |
| 13 | TEXAS A&M UNIVERSITY | Hatcher, N. W. | JSC | Newton, R. W. | NAS 9-14817 | 3426 |
| 13 | TULANE UNIVERSITY | Gangler, J. J. | HQ-RW | Hermann, A. M. | NGL 19-002-027 | 2261 |
| 13 | TUSKEGEE INSTITUTE | Philpott, D. E. | ARC | Sapp, W. J. | NCA 2-810601 | 1036 |
| 13 | UNIV HOUSTON-CL LAKE | Harris, J. W. | JSC | Blanford, G. E. | NSG 9043 | 3476 |
| 13 | UNION COLLEGE | McAvoy, N. | GSFC | Galantowicz, A. | NGR 33-032-004 | 3034 |
| 13 | UNIV OF AKRON | Golub, M. A. | ARC | Gent, A. N. | NSG 2061 | 3134 |
| 13 | UNIV ALA-HUNTSVILLE | Parnell, T. A. | MSFC | Gregory, J. C. | NAS 8-24953 | 1042 |
| 13 | UNIV ALA-HUNTSVILLE | Hagyard, M. J. | MSFC | Wu, S. T. | NAS 8-28097 | 1044 |
| 13 | UNIV ALA-HUNTSVILLE | Swenson, G. R. | MSFC | Wu, S. T. | NAS 8-29543 | 1048 |
| 13 | UNIV ALA-HUNTSVILLE | Chappell, C. R. | MSFC | Smalley, L. L. | NAS 8-30563 | 1050 |
| 13 | UNIV ALA-HUNTSVILLE | Parnell, T. A. | MSFC | Gregory, J. C. | NAS 8-31170 | 1055 |
| 13 | UNIV ALA-HUNTSVILLE | Teuber, D. L. | MSFC | Knezovich, F. M. | NAS 8-31194 | 1058 |
| 13 | UNIV ALA-HUNTSVILLE | Bowden, D. R. | MSFC | Christiansen, D. | NAS 8-31293 | 1059 |
| 13 | UNIV ALA-HUNTSVILLE | Vaughan, O. H. | MSFC | Hung, R. J. | NAS 8-31729 | 1062 |
| 13 | UNIV ALA-HUNTSVILLE | Fishman, G. J. | MSFC | Gregory, J. C. | NAS 8-31895 | 1064 |
| 13 | UNIV ALA-TUSCALOOSA | Bannister, T. C. | MSFC | Miyagawa, I. | NAS 8-28098 | 1071 |
| 13 | UNIV ALA-TUSCALOOSA | Schafer, C. F. | MSFC | De Smet, D. J. | NAS 8-29494 | 1073 |
| 13 | UNIV ALA-TUSCALOOSA | Moore, W. W., Jr. | MSFC | Liu, H. K. | NAS 8-30479 | 1076 |
| 13 | UNIV ALA-TUSCALOOSA | Bensko, J. | MSFC | Hughes, T. | NAS 8-31979 | 1080 |
| 13 | UNIV ALASKA-FAIRBNKS | Schmerling, E. R. | HQ-ST | Davis, T. N. | NGR 02-001-087 | 1090 |
| 13 | UNIV ALASKA-FAIRBNKS | Schmerling, E. R. | HQ-ST | Akasofu, S. I. | NSG 7051 | 1092 |
| 13 | UNIV OF ARIZONA | Hall, C. F. | ARC | Sonett, C. P. | NAS 2-7839 | 1103 |
| 13 | UNIV OF ARIZONA | Zill, L. P. | ARC | Caroff, L. J. | NCA 2-40601 | 1118 |
| 13 | UNIV OF ARIZONA | McAvoy, N. | GSFC | Lamb, W. E., Jr. | NSG 5022 | 1153 |
| 13 | UNIV OF ARIZONA | Kurtz, R. L. | MSFC | Jacobs, S. F. | NAS 8-28661 | 1107 |
| 13 | UNIV OF ARIZONA | Allen, R. E. | MSFC | Bier, M. | NAS 8-29566 | 1108 |
| 13 | UNIV OF ARIZONA | Cauffman, D. P. | HQ-ST | Hsieh, K. C. | NGR 03-002-107 | 1138 |
| 13 | UNIV OF ARIZONA | Cauffman, D. P. | HQ-ST | Sonett, C. P. | NSG 7024 | 1160 |
| 13 | UNIV OF ARIZONA | Timothy, A. F. | HQ-ST | Levy, E. H. | NSG 7168 | 1168 |
| 13 | U ARKANSAS-MONTICELLO | Hardee, S. N. | JSC | Dehon, R. A. | NAS 9-13196 | 1182 |
| 13 | UNIV CALIF-BERKELEY | Billman, K. W. | ARC | Gustafson, T. K. | NSG 2151 | 1501 |
| 13 | UNIV CALIF-BERKELEY | Davis, M. A. | GSFC | Anderson, K. A. | NAS 5-20079 | 1442 |
| 13 | UNIV CALIF-BERKELEY | Davis, M. A. | GSFC | Mozer, F. S. | NAS 5-20080 | 1443 |
| 13 | UNIV CALIF-BERKELEY | Davis, M. A. | GSFC | Anderson, K. A. | NAS 5-20838 | 1444 |
| 13 | UNIV CALIF-BERKELEY | Davis, M. A. | GSFC | Heckman, H. | NAS 5-20995 | 1446 |
| 13 | UNIV CALIF-BERKELEY | Bissell, E. E., Jr. | GSFC | Moser, F. S. | NGR 05-003-239 | 1475 |
| 13 | UNIV CALIF-BERKELEY | Harris, J. W. | JSC | Reynolds, J. H. | NGL 05-003-409 | 1472 |
| 13 | UNIV CALIF-BERKELEY | Harris, J. W. | JSC | Burlingame, A. L. | NGR 05-003-435 | 1478 |
| 13 | UNIV CALIF-BERKELEY | Ondrak, B. T. | MSFC | Price, P. B. | NAS 8-29603 | 1448 |
| 13 | UNIV CALIF-L ANGELES | Poppa, H. R. | ARC | Douglass, D. L. | NSG 2115 | 1580 |
| 13 | UNIV CALIF-L ANGELES | Davis, M. A. | GSFC | Russell, C. T. | NAS 5-20064 | 1539 |
| 13 | UNIV CALIF-L ANGELES | Harris, J. W. | JSC | Warren, N. | NGL 05-007-330 | 1559 |

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| 13 | UNIV CALIF-L ANGELES | Harris, J. W. | JSC | Kaplan, I. R. | NGR 05-007-289 | 1564 |
| 13 | UNIV CALIF-L ANGELES | Keating, G. M. | LARC | Knuth, E. L. | NGR 05-007-416 | 1575 |
| 13 | UNIV CALIF-L ANGELES | Cauffman, D. P. | HQ-ST | Holzer, R. E. | NGR 05-007-276 | 1563 |
| 13 | UNIV CALIF-L ANGELES | Timothy, A. F. | HQ-ST | Ulrich, R. K. | NSG 7158 | 1588 |
| 13 | UNIV CALIF-RIVERSIDE | Temkin, A. | GSFC | Poe, R. T. | NGL 05-008-005 | 1592 |
| 13 | UNIV CALIF-SAN DIEGO | Wales, R. O. | GSFC | McIlwain, C. E. | NAS 5-21055 | 1597 |
| 13 | UNIV CALIF-SAN DIEGO | Shulman, A. R. | GSFC | Lee, S. H. | NGR 05-009-260 | 1632 |
| 13 | UNIV CALIF-SAN DIEGO | Woollam, J. A. | LERC | Luo, H. L. | NSG 3103 | 1637 |
| 13 | UNIV CALIF-SAN DIEGO | Chappell, C. R. | MSFC | McIlwain, C. E. | NAS 8-31145 | 1604 |
| 13 | UNIV CALIF-SAN DIEGO | Roberts, W. T. | MSFC | Banks, P. M. | NAS 8-31839 | 1605 |
| 13 | UNIV CALIF-SAN DIEGO | Opp, A. G. | HQ-SA | Peterson, L. E. | NGL 05-005-003 | 1606 |
| 13 | UNIV CALIF-SAN DIEGO | Cauffman, D. P. | HQ-ST | McIlwain, C. E. | NGL 05-005-007 | 1608 |
| 13 | UNIV CALIF-SAN DIEGO | Taylor, W. W. | HQ-ST | Banks, P. M. | NGR 05-009-075 | 1618 |
| 13 | UNIV CALIF-SAN DIEGO | Cauffman, D. P. | HQ-ST | Fejer, J. A. | NGR 05-009-076 | 1619 |
| 13 | UNIV CALIF-SAN DIEGO | Schmerling, E. R. | HQ-ST | Axford, W. I. | NGR 05-009-081 | 1620 |
| 13 | UNIV CALIF-SAN DIEGO | Timothy, A. F. | HQ-ST | Hudson, H. S. | NSG 7100 | 1641 |
| 13 | UNIV CALIF-SAN DIEGO | Timothy, A. F. | HQ-ST | Peterson, L. E. | NSG 7161 | 1644 |
| 13 | UNIV OF CHICAGO | Davis, M. A. | GSFC | Simpson, J. A. | NAS 5-11067 | 2052 |
| 13 | UNIV OF CHICAGO | Gallagher, W. F. | GSFC | Meyer, P. | NAS 5-20674 | 2053 |
| 13 | UNIV OF CHICAGO | Harris, J. W. | JSC | Anders, E. | NGL 14-001-167 | 2059 |
| 13 | UNIV OF CHICAGO | Harris, J. W. | JSC | Smith, J. V. | NGL 14-001-171 | 2061 |
| 13 | UNIV OF CINCINNATI | Blue, J. W. | LERC | Jha, S. | NSG 3091 | 3146 |
| 13 | UNIV COLORADO-BOLDR | Harris, J. W. | JSC | Larson, E. E. | NGR 06-003-181 | 1781 |
| 13 | UNIV COLORADO-BOLDR | Bass, B. G. | MSFC | Dulk, G. A. | NAS 8-31378 | 1769 |
| 13 | UNIV COLORADO-BOLDR | Mitchell, J. L. | HQ-SA | Speiser, T. W. | NGR 06-003-215 | 1784 |
| 13 | UNIV COLORADO-BOLDR | Timothy, A. F. | HQ-ST | Cooper, J. | NGL 06-003-057 | 1774 |
| 13 | UNIV COLORADO-BOLDR | Timothy, A. F. | HQ-ST | Bruner, E. C., Jr. | NSG 7130 | 1797 |
| 13 | UNIV COLORADO-BOLDR | Timothy, A. F. | HQ-ST | Barth, C. A. | NSG 7165 | 1798 |
| 13 | UNIV COLORADO-BOLDR | Timothy, A. F. | HQ-ST | Roberts, W. O. | NSG 7166 | 1799 |
| 13 | UNIV OF DENVER | Munoz, R. M. | ARC | Murcay, D. G. | NAS 2-8200 | 1803 |
| 13 | UNIV OF DENVER | Hobbs, R. W. | GSFC | Edrich, J. | NAS 5-23190 | 1805 |
| 13 | UNIV OF DENVER | Calahan, H. D. | HQ-SA | Patel, V. L. | NGR 06-004-123 | 1811 |
| 13 | UNIV OF DENVER | Schmerling, E. R. | HQ-ST | Patel, V. L. | NGR 06-004-058 | 1809 |
| 13 | UNIV OF DENVER | Taylor, W. W. | HQ-ST | Roederer, J. G. | NGR 06-004-060 | 1810 |
| 13 | UNIV OF FLORIDA | Thom, K. | HQ-RR | Schneider, R. T. | NGL 10-005-089 | 1923 |
| 13 | UNIV OF GEORGIA | Clingman, J. H. | MSFC | Burkhard, D. G. | NAS 8-31565 | 2013 |
| 13 | UNIV HOUSTON-HOUSTON | Zill, L. P. | ARC | Kiehn, R. M. | NCA 2-295602 | 3462 |
| 13 | UNIV HOUSTON-HOUSTON | Bailey, J. V. | JSC | Pinsky, L. S. | NAS 9-14652 | 3455 |
| 13 | UNIV HOUSTON-HOUSTON | Bailey, J. V. | JSC | Goodman, C. | NGL 44-005-041 | 3463 |
| 13 | UNIV HOUSTON-HOUSTON | Kondo, Y. | JSC | Hildebrandt, A. F. | NGR 44-005-137 | 3469 |
| 13 | UNIV HOUSTON-HOUSTON | Hardin, J. C. | LARC | Kleis, S. J. | NSG 1277 | 3470 |
| 13 | UNIV ILLINOIS-URBANA | Hohl, F. | LARC | Milev, G. H. | NSG 1063 | 2086 |
| 13 | UNIV ILLINOIS-URBANA | Dunning, J. W., Jr. | LERC | Verdeyen, J. T. | NGR 14-005-200 | 2083 |
| 13 | UNIV ILLINOIS-URBANA | Siewert, R. D. | LERC | Strehlow, R. A. | NSG 3008 | 2091 |
| 13 | UNIV OF IOWA | Davis, M. A. | GSFC | Frank, L. A. | NAS 5-11064 | 2169 |
| 13 | UNIV OF IOWA | Denwiddie, M. | GSFC | Gurnett, D. A. | NAS 5-11167 | 2170 |
| 13 | UNIV OF IOWA | Eaker, H. L. | GSFC | Craven, J. D. | NAS 5-11265 | 2171 |
| 13 | UNIV OF IOWA | Davis, M. A. | GSFC | Gurnett, D. A. | NAS 5-20093 | 2174 |
| 13 | UNIV OF IOWA | Davis, M. A. | GSFC | Frank, L. A. | NAS 5-20094 | 2175 |
| 13 | UNIV OF IOWA | Coffee, C. W., Jr. | LARC | Van Allen, J. A. | NAS 1-13129 | 2167 |
| 13 | UNIV OF IOWA | Taylor, W. W. | HQ-ST | Van Allen, J. A. | NGL 16-001-002 | 2178 |
| 13 | UNIV OF IOWA | Cauffman, D. P. | HQ-ST | Montgomery, D. C. | NGL 16-001-043 | 2179 |
| 13 | UNIV OF KENTUCKY | Harris, J. W. | JSC | Ehmann, W. D. | NGR 18-001-058 | 2228 |
| 13 | UNIV OF KENTUCKY | Haggard, J. B., Jr. | LERC | Hsu, N. N. | NGR 18-001-083 | 2229 |
| 13 | UNIV MARYLAND-COL PK | Davis, M. A. | GSFC | Gloeckler, G. | NAS 5-11063 | 2299 |
| 13 | UNIV MARYLAND-COL PK | Davis, M. A. | GSFC | Gloeckler, G. | NAS 5-20062 | 2300 |
| 13 | UNIV MARYLAND-COL PK | Conrath, B. J. | GSFC | Ponnamperuma, C. A. | NAS 5-23237 | 2306 |
| 13 | UNIV MARYLAND-COL PK | Ogilvie, K. W. | GSFC | Coplan, M. A. | NGR 21-002-291 | 2330 |

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| 13 | UNIV MARYLAND-COL PK | Teegarden, B. J. | GSFC | Gloeckler, G. | NGR 21-002-316 | 2331 |
| 13 | UNIV MARYLAND-COL PK | Buften, J. L. | GSFC | Currie, D. G. | NGR 21-002-444 | 2341 |
| 13 | UNIV MARYLAND-COL PK | Simoneau, R. J. | LERC | Sengers, J. V. | NGR 21-002-344 | 2333 |
| 13 | UNIV MARYLAND-COL PK | Coles, W. D. | LERC | Spain, I. L. | NGR 21-002-400 | 2338 |
| 13 | UNIV MARYLAND-COL PK | Schwenk, F. C. | HQ-RR | Weber, J. | NSG 7196 | 2365 |
| 13 | UNIV MARYLAND-COL PK | Brunk, W. E. | HQ-SL | Kundu, M. R. | NGR 21-002-199 | 2327 |
| 13 | UNIV MD-EASTRN SHORE | Kim, H. H. | WFC | Singh, G. | NGR 21-119-003 | 2369 |
| 13 | UNIV OF MASS-AMHERST | Harris, J. W. | JSC | Haggerty, S. E. | NGL 22-010-089 | 2539 |
| 13 | UNIV MICH-ANN ARBOR | Lincoln, K. A. | ARC | Carignan, G. R. | NAS 2-8992 | 2551 |
| 13 | UNIV MICH-ANN ARBOR | Davis, M. A. | GSFC | Haddock, F. T. | NAS 5-20839 | 2560 |
| 13 | UNIV MICH-ANN ARBOR | Spencer, N. W. | GSFC | Carignan, G. R. | NAS 5-22441 | 2562 |
| 13 | UNIV MICH-ANN ARBOR | Trainor, J. H. | GSFC | MacNee, A. B. | NAS 5-22875 | 2565 |
| 13 | UNIV MICH-ANN ARBOR | Bissell, E. E., Jr. | GSFC | Sharp, W. E. | NGR 23-005-360 | 2580 |
| 13 | UNIV MICH-ANN ARBOR | Jordan, S. D. | HQ-SA | Haddock, F. T. | NSG 7004 | 2601 |
| 13 | UNIV MICH-ANN ARBOR | Schmerling, E. R. | HQ-ST | Samir, U. | NGR 23-005-320 | 2579 |
| 13 | U MINN-MNPLS-ST PAUL | Staff, W. O. | GSFC | Epney, O. | NAS 5-3838 | 2618 |
| 13 | U MINN-MNPLS-ST PAUL | Davis, M. A. | GSFC | Kellogg, P. J. | NAS 5-20837 | 2623 |
| 13 | U MINN-MNPLS-ST PAUL | Bissell, E. E., Jr. | GSFC | Winckler, J. R. | NSG 5088 | 2642 |
| 13 | U MINN-MNPLS-ST PAUL | Harris, J. W. | JSC | Alexander, E. C., Jr. | NGL 24-005-225 | 2630 |
| 13 | U MINN-MNPLS-ST PAUL | Harris, J. W. | JSC | Murthy, V. R. | NGR 24-005-223 | 2634 |
| 13 | U MINN-MNPLS-ST PAUL | Weigand, A. J. | LERC | Wehner, G. K. | NSG 3041 | 2640 |
| 13 | U MINN-MNPLS-ST PAUL | Roberts, W. T. | MSFC | Winckler, J. R. | NAS 8-31510 | 2625 |
| 13 | U MINN-MNPLS-ST PAUL | Cauffman, D. P. | HQ-ST | Winckler, J. R. | NGL 24-005-008 | 2627 |
| 13 | U MINN-MNPLS-ST PAUL | Schmerling, E. R. | HQ-ST | Cahill, L. J., Jr. | NGR 24-005-253 | 2636 |
| 13 | UNIV MO-ROLLA | Zill, L. P. | ARC | Levenson, L. L. | NCA 2-450602 | 2700 |
| 13 | UNIV MO-ROLLA | Smith, R. E. | MSFC | Stampfer, J. F., Jr. | NAS 8-31538 | 2696 |
| 13 | UNIV NEBRASKA-LINCLN | Kalet, M. W. | GSFC | Samson, J. R. | NAS 5-22903 | 2722 |
| 13 | UNIV NEBRASKA-LINCLN | Kalet, M. W. | GSFC | Samson, J. A. | NAS 5-23125 | 2723 |
| 13 | UNIV NEW HAMP-DURHAM | Orwig, L. E. | GSFC | Chupp, E. L. | NAS 5-20884 | 2738 |
| 13 | UNIV NEW HAMP-DURHAM | Hunter, W. R. | HQ-ST | Chupp, E. L. | NGL 30-002-018 | 2740 |
| 13 | UNIV NEW HAMP-DURHAM | Schmerling, E. R. | HQ-ST | Arnoldy, R. L. | NGR 30-002-054 | 2743 |
| 13 | UNIV NEW HAMP-DURHAM | Timothy, A. F. | HQ-ST | Chupp, E. L. | NGR 30-002-104 | 2744 |
| 13 | UNIV OF NEW MEXICO | Temkin, A. | GSFC | Beckel, C. L. | NCA 5-41 | 2825 |
| 13 | UNIV OF NEW MEXICO | Calahan, H. D. | HQ-SA | Ahluwalia, H. S. | NGR 32-004-086 | 2836 |
| 13 | UNIV N CAR-CHPL HILL | Parnell, T. A. | MSFC | Childs, C. B. | NAS 8-26601 | 3074 |
| 13 | UNIV OF NOTRE DAME | Cochran, T. H. | LERC | Kanury, M. | NAS 3-20087 | 2143 |
| 13 | UNIV OREGON-EUGENE | Caroff, L. J. | ARC | Kemp, J. | NCA 2-587601 | 3187 |
| 13 | UNIV OREGON-EUGENE | Whiting, E. E. | ARC | Crasemann, B. | NGR 38-003-036 | 3191 |
| 13 | UNIV OREGON-EUGENE | Harris, J. W. | JSC | Weill, D. F. | NGL 38-003-022 | 3188 |
| 13 | UNIV OF PITTSBURGH | Temkin, A. | GSFC | Gerjuoy, E. | NGL 39-011-035 | 3279 |
| 13 | UNIV OF PITTSBURGH | Eichelman, W. F. | JSC | Donahue, T. M. | NAS 9-13803 | 3273 |
| 13 | UNIV OF PITTSBURGH | Harris, J. W. | JSC | Fuller, M. | NGL 39-011-160 | 3281 |
| 13 | UNIV OF ROCHESTER | Osantowski, J. F. | GSFC | Baumeister, P. W. | NAS 5-20028 | 3035 |
| 13 | UNIV SAN FRANCISCO | Taketa, S. T. | ARC | Benton, E. V. | NAS 2-7059 | 1664 |
| 13 | UNIV SAN FRANCISCO | Riccitiello, S. R. | ARC | Hilado, C. J. | NSG 2164 | 1673 |
| 13 | UNIV SAN FRANCISCO | Parnell, T. A. | MSFC | Benton, E. V. | NAS 8-26758 | 1665 |
| 13 | UNIV OF SANTA CLARA | Dyal, P. | ARC | Parkin, C. W. | NSG 2075 | 1698 |
| 13 | UNIV OF SANTA CLARA | Lomax, H. | ARC | Vinokur, M. | NSG 2086 | 1699 |
| 13 | UNIV OF SO ALABAMA | Fordyce, J. S. | LERC | Weber, F. N., Jr. | NSG 3003 | 1082 |
| 13 | UNIV OF SOUTHERN CAL | Bissell, E. E., Jr. | GSFC | Judge, D. L. | NSG 5108 | 1719 |
| 13 | UNIV OF SOUTHERN CAL | Unavailable | JSC | Unavailable | NAS 9-6164 | 1708 |
| 13 | UNIV OF SOUTHERN CAL | Ruff, R. C. | MSFC | Wilcox, W. R. | NAS 8-29847 | 1707 |
| 13 | UNIV OF SOUTHERN CAL | Calahan, H. D. | HQ-SA | Intriligator, D. S. | NGR 05-018-185 | 1716 |
| 13 | UNIV OF SOUTHERN CAL | Cauffman, D. P. | HQ-ST | Vasyliunas, V. M. | NGR 05-018-181 | 1715 |
| 13 | UNIV SO MISSISSIPPI | Wood, G. M. | LARC | Rayborn, G. H. | NSG 1285 | 2683 |
| 13 | UNIV SOUTHWESTERN LA | Chubb, D. L. | LERC | Matese, J. J. | NSG 3049 | 2265 |
| 13 | UNIVERSITY OF SPLIT | Dannenberg, R. E. | ARC | Slapnicar, P. I. | NSG 7163 | 3827 |
| 13 | UNIV TEXAS-AUSTIN | Eichelman, W. F. | JSC | Latham, G. V. | NAS 9-14810 | 3489 |

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| 13 | UNIV TEXAS-DALLAS | Bissell, E. E., Jr. | GSFC | Heikkila, W. J. | NGR 44-004-124 | 3533 |
| 13 | UNIV TEXAS-DALLAS | Berko, F. W. | HQ-SA | Hoffman, J. H. | NSR 44-004-089 | 3542 |
| 13 | UNIV TEXAS-DALLAS | Cauffman, D. P. | HQ-ST | Heikkila, W. J. | NGR 44-004-030 | 3531 |
| 13 | UNIV TEXAS-DALLAS | Schmerling, E. R. | HQ-ST | Heikkila, W. J. | NSR 44-004-041 | 3541 |
| 13 | UNIV OF TOLEDO | Connolley, D. J. | LERC | Rush, W. F. | NSG 3099 | 3157 |
| 13 | UNIV OF TOLEDO | Hall, A. J., Jr. | MSFC | Delsemme, A. H. | NAS 8-31681 | 3152 |
| 13 | UNIV OF WASHINGTON | Harris, J. W. | JSC | Ghose, S. | NGR 48-002-149 | 3754 |
| 13 | UNIV OF WASHINGTON | Thom, K. | HQ-RR | Hertzberg, A. | NGL 48-002-044 | 3746 |
| 13 | UNIV OF WASHINGTON | Schmerling, E. R. | HQ-ST | Parks, G. K. | NGR 48-002-154 | 3756 |
| 13 | UNIV WISC-MADISON | Squires, R. K. | GSFC | Suomi, V. E. | NAS 5-20974 | 3776 |
| 13 | UNIV WISC-MADISON | Cauffman, D. P. | HQ-ST | Scherb, F. | NGR 50-002-162 | 3793 |
| 13 | UNIV OF WYOMING | Sofia, S. | HQ-SA | Tompkins, D. R., Jr. | NGR 51-001-035 | 3812 |
| 13 | VANDERBILT UNIVERSITY | Hohl, F. | LARC | Lee, J. H. | NSG 1232 | 3354 |
| 13 | VANDERBILT UNIVERSITY | Hohl, F. | LARC | Lee, J. H. | NSG 1235 | 3355 |
| 13 | VANDERBILT UNIVERSITY | Nichols, R. L. | MSFC | Kinser, D. L. | NAS 8-30656 | 3352 |
| 13 | VIRGINIA POLY INST | Posey, J. W. | LARC | Nayfeh, A. H. | NAS 1-13884 | 3691 |
| 13 | VIRGINIA POLY INST | Smith, A. | LARC | Sanzone, G. | NSG 1020 | 3706 |
| 13 | VIRGINIA POLY INST | Sentell, R. J. | LARC | Furr, A. K. | NSG 1119 | 3714 |
| 13 | VIRGINIA STATE COL | Wilson, J. W. | LARC | Stronach, C. E. | NGR 47-014-006 | 3734 |
| 13 | WASHINGTON UNIVERSITY | Harris, J. W. | JSC | Walker, R. M. | NGL 26-008-065 | 2711 |
| 13 | WASHINGTON UNIVERSITY | Heyman, J. S. | LARC | Miller, J. G. | NSG 1016 | 2713 |
| 13 | WASHINGTON UNIVERSITY | Schmerling, E. R. | HQ-ST | Abrahamshrauner, B. | NGL 26-008-057 | 2710 |
| 13 | WAYNE STATE UNIV | Brandhorst, H. W., Jr. | LERC | Wang, E. Y. | NSG 3014 | 2610 |
| 13 | WAYNE STATE UNIV | Brandhorst, H. W., Jr. | LERC | Wang, E. Y. | NSG 3081 | 2612 |
| 13 | WICHITA STATE UNIV | Rice, E. J. | LERC | Eversman, W. | NGR 17-003-018 | 2216 |
| 13 | WILLIAMS COLLEGE | Reinhardt, V. S. | GSFC | Crampton, S. B. | NAS 5-23520 | 2541 |
| 13 | XAVIER UNIV-LA | Outlaw, R. A. | LARC | Ioup, J. W. | NSG 1218 | 2267 |
| 19 | ALFRED UNIVERSITY | Taylor, K. R. | MSFC | Lacourse, W. C. | NAS 8-31711 | 2843 |
| 19 | CALIF INST OF TECH | Harris, J. W. | JSC | Ahrens, T. J. | NSG 9019 | 1247 |
| 19 | CALIF INST OF TECH | Dwornik, S. E. | HQ-SL | Albee, A. L. | NSG 7125 | 1239 |
| 19 | CASE WESTERN RESERVE | Nichols, L. D. | LERC | Reshotko, E. | NGL 36-003-064 | 3081 |
| 19 | CLARKSON COL OF TECH | Tatler, K. R. | MSFC | Cole, R. | NAS 8-31708 | 2859 |
| 19 | CLARKSON COL OF TECH | Taylor, K. R. | MSFC | Wilcox, W. R. | NAS 8-31709 | 2860 |
| 19 | COLORADO STATE UNIV | Domitz, S. | LERC | Kaufman, H. R. | NSG 3038 | 1751 |
| 19 | COLUMBIA UNIVERSITY | Smith, D. E. | GSFC | Scholz, C. H. | NGR 33-008-146 | 2876 |
| 19 | COLUMBIA UNIVERSITY | Eichelman, W. F. | JSC | Langseth, M. G. | NAS 9-6037 | 2873 |
| 19 | DC TEACHERS COLLEGE | Holland, A. C. | WFC | Curtis, W. C. | NGR 09-053-002 | 1844 |
| 19 | DC TEACHERS COLLEGE | Holland, A. C. | WFC | Curtis, W. C. | NSG 6003 | 1846 |
| 19 | GEORGIA INST OF TECH | Hohl, F. | LARC | Clement, J. D. | NSG 1288 | 1988 |
| 19 | GEORGIA INST OF TECH | Bianca, C. J. | MSFC | Hanagud, S. V. | NAS 8-30617 | 1971 |
| 19 | HAMPTON INSTITUTE | Kim, H. H. | WFC | Trehan, A. K. | NGR 47-020-006 | 3595 |
| 19 | IOWA STATE UNIV | Zill, L. P. | ARC | Grossman, A. S. | NCA 2-340405 | 2149 |
| 19 | LEHIGH UNIVERSITY | Taylor, K. R. | MSFC | Vander Hoff, J. W. | NAS 8-31706 | 3212 |
| 19 | LEHIGH UNIVERSITY | Taylor, K. K. | MSFC | Micale, E. J. | NAS 8-31707 | 3213 |
| 19 | MASS INST OF TECH | Ostaff, W. A. | GSFC | Clark, G. W. | NAS 5-11082 | 2424 |
| 19 | MASS INST OF TECH | Staelin, D. | GSFC | Shive, J. | NAS 5-22485 | 2427 |
| 19 | MASS INST OF TECH | Hacker, P. T. | LERC | Senturia, S. D. | NAS 3-17534 | 2422 |
| 19 | MASS INST OF TECH | Gluyas, R. E. | LERC | Senturia, S. D. | NSG 3061 | 2508 |
| 19 | MASS INST OF TECH | Adams, W. R. | MSFC | Gatos, H. C. | NAS 8-30576 | 2435 |
| 19 | MORGAN STATE UNIV | Mundy, J. R. | GSFC | Proctor, N. K. | NGT 21-025-006 | 2295 |
| 19 | NEW MEX INST MINING | Maran, S. P. | GSFC | Hume, W. | NCA 5-48 | 2798 |
| 19 | NEW MEX ST U-LAS CR | Bissell, E. E., Jr. | GSFC | Sayles, A., Jr. | NAS 5-20681 | 2803 |
| 19 | NEW MEX ST U-LAS CR | Schlimmer, G. E. | KSC | Unavailable | NAS10-8712 | 2808 |
| 19 | OHIO STATE UNIV | Cassen, P. M. | ARC | Kulacki, F. A. | NGR 36-008-205 | 3124 |
| 19 | OHIO STATE UNIV | Costes, N. C. | MSFC | Mueller, I. I. | NAS 8-31195 | 3116 |
| 19 | OHIO STATE UNIV | Murphy, J. P. | HQ-ES | Mueller, I. I. | NGL 36-008-093 | 3119 |
| 19 | OLD DOMINION UNIV | Kelsall, T. N. | GSFC | Becher, J. | NSG 5053 | 3660 |
| 19 | OLD DOMINION UNIV | Hohl, F. | LARC | Harries, W. L. | NSG 1040 | 3623 |

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| 19 | OLD DOMINION UNIV | Wilson, J. W. | LARC | Khandelwai, G. S. | NSG 1055 | 3624 |
| 19 | OLD DOMINION UNIV | Gapcynski, J. P. | LARC | Breedlove, W. J., Jr. | NSG 1152 | 3635 |
| 19 | OLD DOMINION UNIV | Keating, G. M. | LARC | Goglia, G. L. | NSG 1207 | 3641 |
| 19 | PENN STATE U-UNIV PK | Duke, J. R. | WFC | Hale, L. C. | NAS 6-2602 | 3231 |
| 19 | PENN STATE U-UNIV PK | Ballance, C. W., Jr. | WFC | Hale, L. C. | NSG 6004 | 3258 |
| 19 | PRINCETON UNIVERSITY | Williams, T. S., Jr. | LARC | Hargraves, R. B. | NAS 1-9705 | 2750 |
| 19 | RENSSELAER POLY-NY | Wood, G. M. | LARC | White, F. A. | NSG 1052 | 2981 |
| 19 | RENSSELAER POLY-NY | Adams, W. R. | MSFC | Wiedemeier, H. | NAS 8-28307 | 2972 |
| 19 | RENSSELAER POLY-NY | Adams, W. R. | MSFC | Wiedemeier, H. | NAS 8-30578 | 2973 |
| 19 | RENSSELAER POLY-NY | Snyder, R. S. | MSFC | MacCrone, R. K. | NAS 8-31705 | 2974 |
| 19 | RENSSELAER POLY-NY | Pontious, C. E. | HQ-RE | Frederick, D. K. | NSG 7184 | 2986 |
| 19 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Maddock, M. E. | NCA 2-675414 | 1296 |
| 19 | SO UNIV-BATON ROUGE | Kent, M. I. | MSFC | Liu, K. H. | NGR 19-005-003 | 2250 |
| 19 | STANFORD UNIVERSITY | Erzberger, H. | ARC | Bryson, A. E. | NSG 2007 | 1419 |
| 19 | STANFORD UNIVERSITY | Ostrow, H. | GSFC | MacOvski, A. | NAS 5-23522 | 1344 |
| 19 | STANFORD UNIVERSITY | Cauffman, D. P. | HQ-ST | Croft, T. A. | NGR 05-020-407 | 1398 |
| 19 | UNIV ALA-HUNTSVILLE | Adams, W. R. | MSFC | Walter, H. U. | NAS 8-28304 | 1046 |
| 19 | UNIV ALA-HUNTSVILLE | Detko, G. J. | MSFC | Luttges, W. E. | NAS 8-31174 | 1057 |
| 19 | UNIV ALASKA-FAIRBNKS | Roberts, W. T. | MSFC | Davis, T. N. | NAS 8-31801 | 1087 |
| 19 | UNIV OF ARIZONA | Maran, S. P. | GSFC | Burke, J. J. | NCA 5-38 | 1124 |
| 19 | UNIV OF ARIZONA | Maran, S. P. | GSFC | Epps, H. W. | NCA 5-39 | 1125 |
| 19 | UNIV ARKANSAS-FAYETV | Potter, A. E. | JSC | Waite, W. P. | NAS 9-14251 | 1177 |
| 19 | UNIV CALIF-BERKELEY | Roberts, W. T. | MSFC | Mozel, F. S. | NAS 8-31346 | 1449 |
| 19 | UNIV CALIF-BERKELEY | Schmerling, E. R. | HQ-ST | Anderson, K. A. | NGL 05-003-017 | 1467 |
| 19 | UNIV CALIF-L ANGELES | Hall, C. F. | ARC | Russell, C. T. | NAS 2-8808 | 1534 |
| 19 | UNIV CALIF-L ANGELES | Adams, W. R. | MSFC | Yue, A. S. | NAS 8-28310 | 1542 |
| 19 | UNIV CALIF-L ANGELES | Adams, W. R. | MSFC | Yue, A. S. | NAS 8-30579 | 1544 |
| 19 | UNIV CALIF-L ANGELES | Taylor, K. R. | MSFC | Bunshah, R. F. | NAS 8-31710 | 1545 |
| 19 | UNIV CALIF-L ANGELES | Taylor, W. W. | HQ-ST | Kennel, C. F. | NGL 05-007-190 | 1558 |
| 19 | UNIV CALIF-SAN DIEGO | Berko, F. W. | GSFC | Baity, W. A. | NAS 5-11080 | 1595 |
| 19 | UNIV CALIF-SAN DIEGO | Woollam, J. A. | LERC | Webb, G. W. | NSG 3055 | 1636 |
| 19 | UNIV CALIF-SAN DIEGO | French, B. M. | HQ-SL | Suess, H. E. | NGL 05-009-005 | 1611 |
| 19 | UNIV CALIF-S BARBARA | Harris, J. W. | JSC | Fuller, M. D. | NSG 9020 | 1661 |
| 19 | UNIV COLORADO-BOLDR | Sinnott, D. B. | ARC | Stewart, A. I. | NAS 2-8816 | 1758 |
| 19 | UNIV COLORADO-BOLDR | Bissell, E. E., Jr. | GSFC | Barth, C. A. | NSG 5103 | 1795 |
| 19 | UNIV OF DENVER | Goldberg, R. | GSFC | Barcus, J. R. | NAS 5-22981 | 1804 |
| 19 | UNIV OF FLORIDA | Taylor, K. R. | MSFC | Goldberg, E. P. | NSG 8031 | 1934 |
| 19 | UNIV OF HAWAII-MANOA | Strickland, A. T. | HQ-SL | Berg, E. | NSG 7179 | 2032 |
| 19 | UNIV HOUSTON-HOUSTON | Ballance, C. W., Jr. | WFC | Sheldon, W. R. | NSG 6008 | 3472 |
| 19 | UNIV ILLINOIS-URBANA | Bufton, J. L. | GSFC | Gardner, C. S. | NSG 5049 | 2095 |
| 19 | UNIV ILLINOIS-URBANA | Ballance, C. W., Jr. | WFC | Bowhill, S. A. | NGR 14-005-181 | 2080 |
| 19 | UNIV MARYLAND-COL PK | Dennis, B. R. | GSFC | Rose, W. | NCA 5-6 | 2315 |
| 19 | UNIV MARYLAND-COL PK | Crannel, C. J. | GSFC | Westerhaut, G. | NCA 5-7 | 2316 |
| 19 | UNIV MARYLAND-COL PK | Smith, D. E. | GSFC | Currie, D. G. | NGR 21-002-390 | 2336 |
| 19 | UNIV MARYLAND-COL PK | O'Keefe, J. A. | GSFC | Pai, S. I. | NSG 5083 | 2356 |
| 19 | UNIV MARYLAND-COL PK | Wasilewski, P. J. | GSFC | Weidner, J. R. | NSG 5112 | 2359 |
| 19 | UNIV MARYLAND-COL PK | Eichelman, W. F. | JSC | Weber, J. | NAS 9-5886 | 2308 |
| 19 | UNIV MARYLAND-COL PK | Cauffman, D. P. | HQ-ST | Wu, C. S. | NGL 21-002-005 | 2319 |
| 19 | UNIV MD-EASTRN SHORE | Fitzmaurice, M. W. | GSFC | Singh, G. | NGR 21-119-001 | 2367 |
| 19 | UNIV OF MIAMI | Thekaekara, M. P. | GSFC | Hiser, H. W. | NAS 5-22417 | 1935 |
| 19 | UNIV MICH-ANN ARBOR | Roberts, W. T. | MSFC | Nagy, A. F. | NAS 8-31397 | 2570 |
| 19 | UNIV MICH-ANN ARBOR | Shriver, E. L. | MSFC | Carignan, G. R. | NAS 8-31987 | 2572 |
| 19 | U MINN-MNPLS-ST PAUL | Morris, J. F. | LERC | Chanin, L. M. | NSG 3094 | 2641 |
| 19 | U MINN-MNPLS-ST PAUL | Ballance, C. W., Jr. | WFC | Arnoldy, R. J. | NSG 6005 | 2643 |
| 19 | U MINN-MNPLS-ST PAUL | Ballance, C. W., Jr. | WFC | Nier, A. O. | NSG 6009 | 2644 |
| 19 | U MINN-MNPLS-ST PAUL | Taylor, W. W. | HQ-ST | Kellogg, P. J. | NSG 7108 | 2646 |
| 19 | U MINN-MNPLS-ST PAUL | Cauffman, D. P. | HQ-ST | Cahill, L. J., Jr. | NSG 7237 | 2648 |
| 19 | UNIV OF NEVADA-RENO | Smith, R. E. | MSFC | Telford, J. W. | NAS 8-31441 | 2731 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 19 | UNIV OF NOTRE DAME | Kish, J. A. | LERC | Nahas, J. J. | NSG 3070 | 2147 |
| 19 | UNIV OF PENNSYLVANIA | Taylor, K. R. | MSFC | Zemel, J. N. | NAS 8-31702 | 3265 |
| 19 | UNIV OF PITTSBURGH | Taylor, K. R. | MSFC | Cassidy, W. A. | NAS 8-31703 | 3272 |
| 19 | UNIV OF PITTSBURGH | Ballance, C. W., Jr. | WFC | Zipf, E. C., Jr. | NSG 6011 | 3290 |
| 19 | UNIV TEXAS-AUSTIN | Strickland, A. T. | HQ-SL | Latham, G. V. | NSG 7159 | 3516 |
| 19 | UNIV TEXAS-AUSTIN | Shirey, W. H. | HQ-SL | Shelus, P. J. | NSG 7162 | 3517 |
| 19 | UNIV TEXAS-DALLAS | Eichelman, W. F. | JSC | Hoffman, J. H. | NAS 9-12074 | 3526 |
| 19 | UNIV TEXAS-DALLAS | Chappell, C. R. | MSFC | Hanson, W. B. | NAS 8-31775 | 3525 |
| 19 | UNIV TEXAS-DALLAS | Schmerling, E. R. | HQ-ST | Tinsley, B. A. | NGR 44-004-142 | 3535 |
| 19 | UNIV OF TOLEDO | Fellows, R. F. | HQ-SL | Delsemme, A. H. | W-14168 | 3161 |
| 19 | UNIV OF UTAH | Williams, T. S., Jr. | LARC | Shorthill, R. W. | NAS 1-12705 | 3557 |
| 19 | UNIV OF WASHINGTON | Blanchard, M. B. | ARC | Hodge, P. W. | NSG 2131 | 3758 |
| 19 | VIRGINIA POLY INST | Maahs, H. G. | LARC | Frair, K. L. | NSG 1275 | 3726 |
| 21 | APPALACHIAN STATE U | Falls, L. W. | MSFC | Kitchens, H. | NAS 8-29286 | 3043 |
| 21 | AUBURN UNIV-AUBURN | Cummings, R. E. | MSFC | Vachon, R. I. | NAS 8-30654 | 1021 |
| 21 | AUBURN UNIV-AUBURN | Cook, L. J. | MSFC | Bell, L. | NCA 8-109 | 1027 |
| 21 | BOWIE STATE COLLEGE | Fuchs, A. J. | GSFC | Srivastava, S. | NGR 21-027-004 | 2269 |
| 21 | BOWIE STATE COLLEGE | Mundy, J. R. | GSFC | Kirksey, C. H. | NGT 21-027-012 | 2271 |
| 21 | BROWN UNIVERSITY | Lynch, T. J. | GSFC | Cooper, D. B. | NSG 5036 | 3301 |
| 21 | CAL POLY ST U-S LUIS | Maisel, M. D. | ARC | Grimes, J. E. | NCA 2-678601 | 1248 |
| 21 | CASE WESTERN RESERVE | Neustadter, H. E. | LERC | Zacks, S. | NSG 3078 | 3097 |
| 21 | COPPIN STATE COLLEGE | Muckel, G. A. | GSFC | Sommerfeldt, D. E. | NGR 21-122-001 | 2274 |
| 21 | COPPIN STATE COLLEGE | Rosenzweig, M. B. | GSFC | Pinsky, S. S. | NSG 5052 | 2276 |
| 21 | DREXEL UNIVERSITY | Zeleznik, F. J. | LERC | Rosen, G. H. | NSG 3090 | 3208 |
| 21 | DUKE UNIVERSITY | Migneault, G. E. | LARC | Gerhart, S. L. | NSG 1267 | 3050 |
| 21 | FEDERAL CITY COLLEGE | Fuchs, A. J. | GSFC | Bakshi, J. S. | NGR 09-050-020 | 1852 |
| 21 | FEDERAL CITY COLLEGE | Lancaster, E. R. | GSFC | Johnson, E. S. | NSG 5003 | 1853 |
| 21 | GEORGIA INST OF TECH | Leybold, H. A. | LARC | Hanagud, S. V. | NGR 11-002-169 | 1983 |
| 21 | GEORGIA INST OF TECH | Huggins, C. T. | MSFC | Walsh, J. R. | NAS 8-30919 | 1974 |
| 21 | IOWA STATE UNIV | Zill, L. P. | ARC | Herget, C. J. | NCA 2-340502 | 2152 |
| 21 | LEHIGH UNIVERSITY | Illg, W. | LARC | Erdogan, F. | NGR 39-007-011 | 3217 |
| 21 | MARQUETTE UNIVERSITY | Hinton, D. E. | LARC | Nigro, N. J. | NSG 1025 | 3770 |
| 21 | MARY BALDWIN COLLEGE | Campbell, J. W. | LARC | Sawyer, J. O. | NSG 1209 | 3601 |
| 21 | MISSISSIPPI STATE U | Weilmuenster, K. J. | LARC | Thompson, J. F. | NSG 1242 | 2674 |
| 21 | NEW YORK UNIVERSITY | South, J. C., Jr. | LARC | Garabedian, P. R. | NGR 33-016-167 | 2945 |
| 21 | NORFOLK STATE COL | Shoosmith, J. N. | LARC | Boseman, M. | NSG 1014 | 3602 |
| 21 | RICE UNIVERSITY | Baker, K. | JSC | Lynn, M. S. | NAS 9-12776 | 3388 |
| 21 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Shaw, S. J. | NCA 2-660502 | 1279 |
| 21 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Bredt, T. H. | NCA 2-745515 | 1363 |
| 21 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Petrosian, V. | NCA 2-745519 | 1367 |
| 21 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Oligier, J. | NCA 2-745520 | 1368 |
| 21 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Cerf, V. | NCA 2-745607 | 1376 |
| 21 | STATE UNIV NY-BUFFAL | Van Vleck, E. | MSFC | Jain, A. K. | NAS 8-31434 | 2999 |
| 21 | TEXAS A&M UNIVERSITY | Damon, E. P. | GSFC | Simmons, D. B. | NAS 5-22840 | 3407 |
| 21 | TEXAS A&M UNIVERSITY | Broune, I. D. | JSC | Hartley, H. O. | NAS 9-13894 | 3418 |
| 21 | TEXAS A&M UNIVERSITY | Nolin, F. D. | JSC | Guseman, L. F., Jr. | NAS 9-14556 | 3424 |
| 21 | TEXAS A&M UNIVERSITY | Browne, I. D. | JSC | Guseman, L. F., Jr. | NAS 9-14689 | 3425 |
| 21 | TEXAS A&M UNIVERSITY | Hay, D. H. | JSC | Guseman, L. F., Jr. | NAS 9-14904 | 3431 |
| 21 | TEXAS A&M UNIVERSITY | Key, J. E. | MSFC | Strickland, J. A. | NAS 8-31332 | 3415 |
| 21 | UNIV ALA-TUSCALOOSA | Digesu, F. E. | MSFC | Ainsworth, O. R. | NAS 8-30886 | 1078 |
| 21 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | Fong, C. Y. | NCA 2-180502 | 1517 |
| 21 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Carterette, E. C. | NCA 2-390501 | 1548 |
| 21 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Schmit, L. A. | NCA 2-390602 | 1552 |
| 21 | UNIV HOUSTON-HOUSTON | Baker, K. | JSC | Decell, H. P., Jr. | NAS 9-12777 | 3448 |
| 21 | UNIV HOUSTON-HOUSTON | Heyborn, R. P. | JSC | Decell, H. P., Jr. | NAS 9-15000 | 3457 |
| 21 | UNIV ILLINOIS-URBANA | Slye, R. E. | ARC | Ray, R. M. | NGR 14-005-202 | 2084 |
| 21 | UNIV MARYLAND-COL PK | Des Jardins, R. | GSFC | Basili, V. R. | NAS 5-22581 | 2303 |
| 21 | UNIV MARYLAND-COL PK | Barsky, J. | GSFC | Agrawala, A. K. | NAS 5-22878 | 2305 |

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| 21 | UNIV MARYLAND-COL PK | Pontious, C. E. | HQ-RE | Minker, J. | NGR 21-002-270 | 2329 |
| 21 | UNIV MARYLAND-COL PK | Thom, K. | HQ-RR | Tidman, D. A. | NGR 21-002-408 | 2339 |
| 21 | UNIV MICH-ANN ARBOR | Straeter, T. A. | LARC | Holland, J. H. | NSG 1176 | 2591 |
| 21 | UNIV OF SO FLORIDA | Park, S. K. | LARC | Tsokos, C. P. | NSG 1159 | 1949 |
| 21 | UNIV TENNESSEE-KNOXV | Schaefer, D. H. | GSFC | Bodenheimer, R. E. | NSG 5002 | 3347 |
| 21 | UNIV TENNESSEE-KNOXV | Smith, R. E. | LARC | Baker, A. J. | NSG 1261 | 3346 |
| 21 | UNIV TEXAS-AUSTIN | Key, J. E. | MSFC | Dunham, R. B. | NAS 8-31566 | 3484 |
| 21 | UNIV TEXAS-DALLAS | Baker, K. | JSC | Odell, P. L. | NAS 9-13512 | 3527 |
| 21 | UNIV OF VIRGINIA | Barker, L. E. | LARC | Parrish, E. A., Jr. | NSG 1151 | 3680 |
| 21 | UNIV WISC-MADISON | Campbell, J. W. | LARC | Johnson, R. A. | NSG 1196 | 3798 |
| 21 | UTAH STATE UNIV | Zill, L. P. | ARC | Martin, C. F. | NCA 2-820501 | 3575 |
| 21 | VIRGINIA POLY INST | Campbell, J. W. | LARC | Hinkelmann, K. | NSG 1071 | 3709 |
| 31 | ALCORN STATE UNIV | Schmid, P. E. | GSFC | Paul, M. P. | NGR 25-012-001 | 2650 |
| 31 | CALIF INST OF TECH | Kelsall, T. N. | GSFC | Neugebauer, G. | NAS 5-20492 | 1190 |
| 31 | CALIF INST OF TECH | Nelson, D. W. | GSFC | Ingersoll, A. P. | NAS 5-22965 | 1194 |
| 31 | CALIF INST OF TECH | Fellows, R. F. | HQ-SL | Murray, B. C. | NSG 7112 | 1238 |
| 31 | CITY COLLEGE OF N Y | Halem, M. | GSFC | Spar, J. | NGR 33-013-086 | 2853 |
| 31 | CITY COLLEGE OF N Y | Turner, R. E. | LARC | Chen, C. M. | NSG 1305 | 2855 |
| 31 | CLARK COLLEGE | Reynolds, R. T. | ARC | Walker, G. H. | NSG 2143 | 1953 |
| 31 | COLLEGE OF WM & MARY | Russell, J. M., III | LARC | Park, J. H. | NSG 1203 | 3588 |
| 31 | COLORADO STATE UNIV | Theon, J. S. | GSFC | Reiter, E. R. | NGR 06-002-098 | 1740 |
| 31 | COLORADO STATE UNIV | Curran, R. J. | GSFC | Vonder Haar, T. H. | NGR 06-002-102 | 1741 |
| 31 | COLORADO STATE UNIV | Adler, R. F. | GSFC | Vonder Haar, T. H. | NSG 5011 | 1754 |
| 31 | COLORADO STATE UNIV | Neil, E. A. | GSFC | Marlatt, W. E. | NSG 5073 | 1755 |
| 31 | COLORADO STATE UNIV | Rados, R. M. | GSFC | Sinclair, P. C. | NSG 5105 | 1756 |
| 31 | COLORADO STATE UNIV | Byrns, Z. H. | JSC | Marlatt, W. E. | NAS 9-14765 | 1733 |
| 31 | COLORADO STATE UNIV | Sweet, G. E. | LARC | Vonder Haar, T. H. | NAS 1-12106 | 1721 |
| 31 | COLORADO STATE UNIV | Costen, R. C. | LARC | Sinclair, P. C. | NSG 1215 | 1748 |
| 31 | COLUMBIA UNIVERSITY | Worrall, W. | GSFC | Novick, R. | NAS 5-22408 | 2866 |
| 31 | CORNELL UNIVERSITY | Fellows, R. F. | HQ-SL | Sagan, C. E. | NGL 33-010-082 | 2909 |
| 31 | CORNELL UNIVERSITY | Fellows, R. F. | HQ-SL | Gierasch, P. J. | NGL 33-010-186 | 2911 |
| 31 | CORNELL UNIVERSITY | Fellows, R. F. | HQ-SL | Elliot, J. L. | NSG 7243 | 2937 |
| 31 | DREXEL UNIVERSITY | Sweet, G. E. | LARC | House, F. B. | NAS 1-11871 | 3203 |
| 31 | DREXEL UNIVERSITY | Russell, J. M., III | LARC | House, F. B. | NAS 1-14393 | 3204 |
| 31 | DREXEL UNIVERSITY | Hill, K. | MSFC | Kreitzberg, C. W. | NAS 8-31235 | 3206 |
| 31 | DREXEL UNIVERSITY | Holland, A. C. | WFC | Brandy, A. R. | NSG 6007 | 3209 |
| 31 | FAIRFIELD UNIVERSITY | Heath, D. F. | GSFC | McElaney, J. H. | NGR 07-010-002 | 1816 |
| 31 | GEORGE WASHINGTON U | Callis, L. B., Jr. | LARC | Liebowitz, H. | NSG 1026 | 1864 |
| 31 | GEORGE WASHINGTON U | Callis, L. B., Jr. | LARC | Liebowitz, H. | NSG 1216 | 1869 |
| 31 | GEORGE WASHINGTON U | Costen, R. C. | LARC | Liebowitz, H. | NSG 1251 | 1872 |
| 31 | GEORGIA INST OF TECH | Levine, D. M. | GSFC | Robertson, D. W. | NAS 5-20956 | 1965 |
| 31 | GEORGIA INST OF TECH | King, J. L. | GSFC | Blue, M. D. | NSG 5082 | 1996 |
| 31 | GEORGIA INST OF TECH | Lawrence, G. F. | LARC | Zimmer, R. P. | NAS 1-14351 | 1960 |
| 31 | GEORGIA INST OF TECH | Fellows, R. F. | HQ-SL | Edwards, H. D. | NGL 11-002-004 | 1980 |
| 31 | HARVARD UNIVERSITY | Poppoff, I. G. | ARC | McElroy, M. B. | NSG 2031 | 2406 |
| 31 | HARVARD UNIVERSITY | Findlay, J. A. | GSFC | McElroy, M. B. | NAS 5-23199 | 2385 |
| 31 | HARVARD UNIVERSITY | Donley, J. L. | GSFC | Reeves, E. M. | NAS 5-23494 | 2387 |
| 31 | HARVARD UNIVERSITY | Theon, J. S. | GSFC | Lindzen, R. S. | NGR 22-007-275 | 2404 |
| 31 | HARVARD UNIVERSITY | Williams, T. S., Jr. | LARC | McElroy, M. B. | NAS 1-10492 | 2379 |
| 31 | HARVARD UNIVERSITY | Fellows, R. F. | HQ-SL | Goody, R. M. | NGL 22-007-228 | 2394 |
| 31 | HARVARD UNIVERSITY | Fellows, R. F. | HQ-SL | Goody, R. M. | NGR 22-007-242 | 2397 |
| 31 | HARVARD UNIVERSITY | Fellows, R. F. | HQ-SL | McElroy, M. B. | NGR 22-007-267 | 2400 |
| 31 | HARVARD UNIVERSITY | Fellows, R. F. | HQ-SL | Pipkin, F. M. | NSG 7095 | 2410 |
| 31 | IOWA STATE UNIV | Zill, L. P. | ARC | Grossman, A. S. | NCA 2-340504 | 2154 |
| 31 | JOHNS HOPKINS UNIV | Corrigan, J. P. | GSFC | Doering, D. M. | NAS 5-11415 | 2278 |
| 31 | JOHNS HOPKINS UNIV | Roberts, W. T. | MSFC | Feldman, P. D. | NAS 8-31413 | 2281 |
| 31 | KANSAS STATE UNIV | Salomonson, V. V. | GSFC | Kanemasu, E. T. | NSG 5101 | 2185 |
| 31 | KANSAS STATE UNIV | Barnett, T. L. | JSC | Kanemasu, E. T. | NAS 9-14899 | 2181 |

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| 31 | KANSAS STATE UNIV | Fellows, R. F. | HQ-SL | Williams, D. | NGL 17-001-026 | 2184 |
| 31 | MASS INST OF TECH | Reynolds, R. T. | ARC | Prinn, R. G. | NSG 2010 | 2498 |
| 31 | MASS INST OF TECH | Ratliff, R. B. | GSFC | Staelin, D. H. | NAS 5-21980 | 2426 |
| 31 | MASS INST OF TECH | Heath, D. F. | GSFC | Cunnold, S. | NAS 5-22915 | 2428 |
| 31 | MASS INST OF TECH | Halem, M. | GSFC | Stone, P. H. | NGR 22-009-727 | 2474 |
| 31 | MASS INST OF TECH | Wexler, R. | GSFC | Austin, P. M. | NSG 5095 | 2516 |
| 31 | MASS INST OF TECH | Hansen, J. E. | GSFC | Stone, P. H. | NSG 5113 | 2517 |
| 31 | MASS INST OF TECH | Eichelman, W. F. | JSC | Toksoz, M. N. | NAS 9-12334 | 2440 |
| 31 | MASS INST OF TECH | Fellows, R. F. | HQ-SL | Lewis, J. S. | NGL 22-009-521 | 2453 |
| 31 | NEW YORK UNIVERSITY | Halem, M. | GSFC | Isaacson, E. | NGL 33-016-013 | 2942 |
| 31 | NEW YORK UNIVERSITY | Stewart, R. W. | GSFC | Hoffert, M. I. | NSG 5033 | 2954 |
| 31 | NEW YORK UNIVERSITY | Halem, M. | GSFC | Isaacson, E. | NSG 5034 | 2955 |
| 31 | NEW YORK UNIVERSITY | Halem, M. | GSFC | Hoffert, M. I. | NSG 5045 | 2956 |
| 31 | OHIO STATE UNIV | Hirschmann, E. | GSFC | Levis, C. A. | NAS 5-21983 | 3112 |
| 31 | OLD DOMINION UNIV | Crumbly, K. H. | LARC | Harris, F. S., Jr. | NGR 47-003-068 | 3615 |
| 31 | OLD DOMINION UNIV | Melfi, L. T., Jr. | LARC | Clay, F. P., Jr. | NGR 47-003-082 | 3617 |
| 31 | OLD DOMINION UNIV | Keating, G. M. | LARC | Goglia, G. L. | NSG 1028 | 3621 |
| 31 | OLD DOMINION UNIV | Remsberg, E. E. | LARC | Kindle, E. C. | NSG 1060 | 3625 |
| 31 | OLD DOMINION UNIV | Reichle, H. G., Jr. | LARC | Kindle, E. C. | NSG 1127 | 3631 |
| 31 | OLD DOMINION UNIV | Russell, J. M., III | LARC | Kindle, E. C. | NSG 1131 | 3632 |
| 31 | OLD DOMINION UNIV | Reichle, H. G., Jr. | LARC | Tiwari, S. N. | NSG 1153 | 3636 |
| 31 | OLD DOMINION UNIV | Allario, F. | LARC | Kindle, E. C. | NSG 1197 | 3640 |
| 31 | OLD DOMINION UNIV | McCormick, M. P. | LARC | Deepak, A. | NSG 1252 | 3649 |
| 31 | OLD DOMINION UNIV | McCormick, M. P. | LARC | Chu, W. P. | NSG 1259 | 3650 |
| 31 | OLD DOMINION UNIV | Reichle, H. G., Jr. | LARC | Tiwari, S. N. | NSG 1282 | 3654 |
| 31 | OLD DOMINION UNIV | Holland, A. C. | WFC | Bandy, A. R. | NSG 6002 | 3661 |
| 31 | OLD DOMINION UNIV | Vitale, J. A. | HQ-P | Kindle, E. C. | NGL 47-003-067 | 3611 |
| 31 | PENN STATE U-UNIV PK | Davis, R. E. | LARC | Cahir, J. J. | NSG 1280 | 3250 |
| 31 | PENN STATE U-UNIV PK | Fichtl, G. H. | MSFC | Blackadar, A. K. | NAS 8-21140 | 3233 |
| 31 | PENN STATE U-UNIV PK | Fichtl, G. H. | MSFC | Long, S. R. | NAS 8-27334 | 3234 |
| 31 | PENN STATE U-UNIV PK | Duke, J. R. | WFC | Olivero, J. | NAS 6-2726 | 3232 |
| 31 | POLY INST OF NY | Halem, M. | GSFC | Miller, J. E. | NSG 5041 | 2969 |
| 31 | POLY INST OF NY | Fellows, R. F. | HQ-SL | Gross, S. H. | NGR 33-006-068 | 2961 |
| 31 | RENSSELAER POLY-NY | Fellows, R. F. | HQ-SL | Harteck, P. | NGL 33-018-007 | 2976 |
| 31 | RICE UNIVERSITY | Williams, R. J. | HQ-SL | Michel, F. C. | NSG 7032 | 3397 |
| 31 | RICE UNIVERSITY | Fellows, R. F. | HQ-SL | Chamberlain, J. W. | NSG 7043 | 3398 |
| 31 | RICE UNIVERSITY | Stuart-Alexander, D. E. | HQ-SM | Lenzen, K. H. | NSG 7025 | 3396 |
| 31 | ST U NY COL-PURCHASE | Halem, M. | GSFC | Tenenbaum, J. | NSG 5077 | 3031 |
| 31 | ST LOUIS UNIVERSITY | Fellows, R. F. | HQ-SL | Pallman, A. J. | NGR 26-006-042 | 2686 |
| 31 | SAN DIEGO STATE UNIV | Pollack, J. B. | ARC | Angione, R. J. | NSG 2138 | 1274 |
| 31 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Riegel, C. A. | NCA 2-675509 | 1299 |
| 31 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Ellesen, R. | NCA 2-675518 | 1305 |
| 31 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Riegel, C. A. | NCA 2-675614 | 1319 |
| 31 | SAN JOSE STATE UNIV | Whitten, R. C. | ARC | Riegel, C. A. | NSG 2130 | 1331 |
| 31 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Mitchner, M. | NCA 2-745517 | 1365 |
| 31 | STANFORD UNIVERSITY | Reynolds, R. T. | ARC | Spreiter, J. R. | NSG 2072 | 1425 |
| 31 | STANFORD UNIVERSITY | Heath, D. F. | GSFC | Wilcox, J. M. | NSG 5024 | 1435 |
| 31 | STANFORD UNIVERSITY | Fellows, R. F. | HQ-SL | Eshleman, V. R. | NGL 05-020-014 | 1382 |
| 31 | STATE UNIV NY-ALBANY | Reynolds, R. T. | ARC | Kiang, C. S. | NSG 2080 | 2991 |
| 31 | STATE UNIV NY-ALBANY | Fellows, R. F. | HQ-SL | Weinberg, J. L. | NSG 7093 | 2993 |
| 31 | STATE UNIV NY-ALBANY | King, J., Jr. | HQ-SU | Kiang, C. S. | NSG 7222 | 2994 |
| 31 | STATE UNIV NY-ALBANY | King, J., Jr. | HQ-SU | Weinberg, J. L. | NSG 7230 | 2995 |
| 31 | STATE U NY-STONY BRK | Hansen, J. E. | GSFC | Owen, T. | NGR 33-015-165 | 3014 |
| 31 | STATE U NY-STONY BRK | Hansen, J. E. | GSFC | Hogan, J. S. | NSG 5015 | 3019 |
| 31 | STATE U NY-STONY BRK | Stewart, R. W. | GSFC | Hogan, J. S. | NSG 5102 | 3020 |
| 31 | STATE U NY-STONY BRK | Fellows, R. F. | HQ-SL | Varanasi, P. | NGR 33-015-139 | 3010 |
| 31 | TENNESSEE TECH U | Humphries, W. R. | MSFC | Griggs, E. I. | NAS 8-31564 | 3326 |
| 31 | TEXAS A&M UNIVERSITY | Ehernberger, L. J. | DFRC | Scoggins, J. R. | NGR 44-001-081 | 3434 |

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| 31 | TEXAS A&M UNIVERSITY | Hovis, W. A. | GSFC | El-Sayed, S. Z. | NAS 5-22966 | 3408 |
| 31 | TEXAS A&M UNIVERSITY | Turner, R. E. | MSFC | Scoggins, J. R. | NAS 8-26751 | 3411 |
| 31 | TEXAS A&M UNIVERSITY | Fichtl, G. H. | MSFC | Brundidge, K. C. | NAS 8-29582 | 3412 |
| 31 | TEXAS A&M UNIVERSITY | Fichtl, G. H. | MSFC | Scoggins, J. R. | NAS 8-29764 | 3413 |
| 31 | TEXAS A&M UNIVERSITY | Fichtl, G. H. | MSFC | Brundidge, K. C. | NAS 8-31234 | 3414 |
| 31 | TEXAS A&M UNIVERSITY | Hill, C. K. | MSFC | Scoggins, J. R. | NAS 8-31773 | 3416 |
| 31 | TEXAS A&M UNIVERSITY | Fellows, R. F. | HQ-SL | Plass, G. N. | NGR 44-001-117 | 3435 |
| 31 | UNIV ALA-HUNTSVILLE | Smith, R. E. | MSFC | Hung, R. J. | NAS 8-30247 | 1049 |
| 31 | UNIV ALA-HUNTSVILLE | Smith, R. E. | MSFC | Hung, R. J. | NAS 8-31321 | 1060 |
| 31 | UNIV ALA-TUSCALOOSA | Randall, J. L. | MSFC | Webb, W. E. | NAS 8-25562 | 1070 |
| 31 | UNIV ALASKA-FAIRBNKS | Haughney, L. C. | ARC | Sivjee, G. G. | NSG 2053 | 1091 |
| 31 | UNIV ALASKA-FAIRBNKS | Crump, E. W. | GSFC | Belon, A. E. | NAS 5-21833 | 1086 |
| 31 | UNIV OF ARIZONA | Hall, C. F. | ARC | Tomasko, M. G. | NAS 2-8818 | 1104 |
| 31 | UNIV OF ARIZONA | Heath, D. F. | GSFC | Herman, B. M. | NGR 03-002-382 | 1147 |
| 31 | UNIV OF ARIZONA | Levine, D. M. | GSFC | Krider, E. P. | NSG 5023 | 1154 |
| 31 | UNIV OF ARIZONA | Curran, R. J. | GSFC | Herman, B. M. | NSG 5046 | 1156 |
| 31 | UNIV OF ARIZONA | Toft, P. D. | KSC | Krider, E. P. | NAS10-8518 | 1114 |
| 31 | UNIV OF ARIZONA | McCormick, M. P. | LARC | Herman, B. M. | NAS 1-14332 | 1101 |
| 31 | UNIV OF ARIZONA | Fellows, R. F. | HQ-SL | Hoenig, S. A. | NGL 03-002-019 | 1131 |
| 31 | UNIV ARKANSAS-FAYETV | Falls, L. W. | MSFC | Carter, M. C. | NAS 8-31550 | 1175 |
| 31 | UNIV ARKANSAS-FAYETV | Huffaker, R. M. | MSFC | Skeith, R. W. | NAS 8-31771 | 1176 |
| 31 | UNIV CALIF-BERKELEY | Fellows, R. F. | HQ-SL | Pimental, G. C. | NGL 05-003-286 | 1470 |
| 31 | UNIV CALIF-BERKELEY | Donn, B. D. | HQ-SL | Cunningham, L. E. | NGR 05-003-309 | 1476 |
| 31 | UNIV CALIF-IRVINE | Reed, E. F. | HQ-SU | Molina, M. J. | NSG 7208 | 1530 |
| 31 | UNIV CALIF-L ANGELES | Pollack, J. | ARC | Schubert, G. | NSG 2094 | 1579 |
| 31 | UNIV CALIF-L ANGELES | Ehernberger, L. J. | DFRC | Wurtele, M. G. | NSG 4001 | 1582 |
| 31 | UNIV CALIF-L ANGELES | Halem, M. | GSFC | Mintz, Y. | NGR 05-007-328 | 1567 |
| 31 | UNIV CALIF-L ANGELES | McCormick, M. P. | LARC | Kuriyan, J. G. | NSG 1270 | 1578 |
| 31 | UNIV CALIF-L ANGELES | Fellows, R. F. | HQ-SL | Schubert, G. | NSG 7164 | 1589 |
| 31 | UNIV CALIF-L ANGELES | Fellows, R. F. | HQ-SL | Aller, L. H. | NSG 7239 | 1591 |
| 31 | UNIV CALIF-SAN DIEGO | Donley, J. L. | GSFC | Peterson, L. E. | NAS 5-11081 | 1596 |
| 31 | UNIV CALIF-SAN DIEGO | Schmerling, E. R. | HQ-ST | Doupnik, J. R. | NSG 7001 | 1639 |
| 31 | UNIV OF CHICAGO | Shenk, W. E. | GSFC | Fujita, T. T. | NGR 14-001-008 | 2063 |
| 31 | UNIV OF CHICAGO | Fellows, R. F. | HQ-SL | Kaplan, L. D. | NGR 14-001-194 | 2067 |
| 31 | UNIV COLORADO-BOLDR | Poppoff, I. G. | ARC | London, J. | NSG 2126 | 1792 |
| 31 | UNIV COLORADO-BOLDR | Findlay, J. A. | GSFC | Barth, C. A. | NAS 5-11405 | 1759 |
| 31 | UNIV COLORADO-BOLDR | Worrall, W. | GSFC | Bruner, E. C., Jr. | NAS 5-22409 | 1762 |
| 31 | UNIV COLORADO-BOLDR | Pirraglia, J. | GSFC | Hard, C. | NAS 5-22440 | 1763 |
| 31 | UNIV COLORADO-BOLDR | Benson, R. F. | GSFC | Calvert, W. | NAS 5-23346 | 1767 |
| 31 | UNIV COLORADO-BOLDR | Fellows, R. F. | HQ-SL | Barth, C. A. | NGL 06-003-052 | 1773 |
| 31 | UNIV COLORADO-BOLDR | Fellows, R. F. | HQ-SL | Barth, C. A. | NGL 06-003-064 | 1775 |
| 31 | UNIV COLORADO-BOLDR | Brunk, W. E. | HQ-SL | Barth, C. A. | NGR 06-003-127 | 1778 |
| 31 | UNIV COLORADO-BOLDR | King, J., Jr. | HQ-SU | London, J. | NSG 7224 | 1800 |
| 31 | UNIV COLORADO-BOLDR | King, J., Jr. | HQ-SU | Thomas, R. J. | NSG 7231 | 1801 |
| 31 | UNIV OF CONNECTICUT | Halem, M. | GSFC | Bock, P. | NSG 5075 | 1821 |
| 31 | UNIV OF DAYTON | Duke, J. R. | WFC | Chupp, E. L. | NAS 6-2456 | 3149 |
| 31 | UNIV OF FLORIDA | Toft, P. D. | KSC | Uman, M. A. | NGR 10-005-169 | 1926 |
| 31 | UNIV OF FLORIDA | Fellows, R. F. | HQ-SL | Green, A. S. | NGL 10-005-008 | 1921 |
| 31 | UNIV HOUSTON-HOUSTON | Cauffman, D. P. | HQ-ST | Sheldon, W. R. | NGR 44-005-133 | 3468 |
| 31 | UNIV ILLINOIS-URBANA | King, J., Jr. | HQ-SU | Unavailable | W-14133 | 2097 |
| 31 | UNIV OF IOWA | Davis, M. A. | GSFC | Gurnett, D. A. | NAS 5-11431 | 2173 |
| 31 | UNIV OF KANSAS | Wexler, R. | GSFC | Eagleman, J. R. | NSG 5086 | 2215 |
| 31 | UNIV OF KENTUCKY | Reichle, H. G., Jr. | LARC | Peters, L. K. | NSG 1273 | 2231 |
| 31 | UNIV MARYLAND-COL PK | Boese, R. W. | ARC | Wilkerson, T. B. | NCA 2-420701 | 2311 |
| 31 | UNIV MARYLAND-COL PK | Spencer, N. W. | GSFC | Wilkerson, T. W. | NAS 5-22537 | 2302 |
| 31 | UNIV MARYLAND-COL PK | Findlay, J. A. | GSFC | Messenger, C. J. | NAS 5-22835 | 2304 |
| 31 | UNIV MARYLAND-COL PK | Neupert, W. M. | GSFC | Smith, E. | NCA 5-3 | 2313 |
| 31 | UNIV MARYLAND-COL PK | Kastner, S. O. | GSFC | Martin, F. W. | NCA 5-4 | 2314 |

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| 31 | UNIV MARYLAND-COL PK | Northrop, T. G. | GSFC | Smith, E. V. | NGL 21-002-033 | 2320 |
| 31 | UNIV MARYLAND-COL PK | Brace, L. H. | GSFC | Matthews, D. L. | NGR 21-002-096 | 2326 |
| 31 | UNIV MARYLAND-COL PK | Theon, J. S. | GSFC | Thompson, O. E. | NSG 5084 | 2357 |
| 31 | UNIV MARYLAND-COL PK | Northam, G. B. | LARC | Gammon, R. W. | NSG 1156 | 2345 |
| 31 | UNIV OF MIAMI | Hovis, W. A. | GSFC | Gordon, H. R. | NAS 5-22963 | 1936 |
| 31 | UNIV MICH-ANN ARBOR | Hedin, A. | GSFC | Carignan, G. R. | NAS 5-11376 | 2556 |
| 31 | UNIV MICH-ANN ARBOR | Sing, M. L. | GSFC | Cliff, R. A. | NAS 5-11380 | 2557 |
| 31 | UNIV MICH-ANN ARBOR | Wright, D. U., Jr. | GSFC | Horvath, J. J. | NAS 5-20622 | 2558 |
| 31 | UNIV MICH-ANN ARBOR | Krehbiel, J. P. | GSFC | Carignan, G. R. | NAS 5-20806 | 2559 |
| 31 | UNIV MICH-ANN ARBOR | Cooley, J. E. | GSFC | Carignan, G. R. | NAS 5-20939 | 2561 |
| 31 | UNIV MICH-ANN ARBOR | Krehbiel, J. P. | GSFC | Brace, L. H. | NAS 5-22587 | 2563 |
| 31 | UNIV MICH-ANN ARBOR | Corrigan, J. P. | GSFC | Hays, P. B. | NAS 5-23006 | 2566 |
| 31 | UNIV MICH-ANN ARBOR | Spencer, N. W. | GSFC | Carignan, G. R. | NAS 5-23230 | 2567 |
| 31 | UNIV MICH-ANN ARBOR | Curran, R. J. | GSFC | Weil, H. | NSG 5044 | 2598 |
| 31 | UNIV MICH-ANN ARBOR | Levine, D. M. | GSFC | Senior, T. B. | S-54214A | 2606 |
| 31 | UNIV MICH-ANN ARBOR | Stanley, J. F. | JSC | Anderson, J. G. | NSG 9031 | 2605 |
| 31 | UNIV MICH-ANN ARBOR | Russell, J. M., III | LARC | Drayson, S. R. | NAS 1-14394 | 2549 |
| 31 | UNIV MICH-ANN ARBOR | Reichle, H. G., Jr. | LARC | Drayson, S. R. | NGR 23-005-617 | 2588 |
| 31 | UNIV MICH-ANN ARBOR | Russell, J. M., III | LARC | Drayson, S. R. | NSG 1003 | 2589 |
| 31 | UNIV MICH-ANN ARBOR | Pellett, G. L. | LARC | Dingle, A. N. | NSG 1243 | 2593 |
| 31 | UNIV MICH-ANN ARBOR | Devries, L. L. | MSFC | Stedman, D. H. | NAS 8-30625 | 2569 |
| 31 | UNIV MICH-ANN ARBOR | Roberts, W. T. | MSFC | Samir, U. | NAS 8-31772 | 2571 |
| 31 | UNIV MICH-ANN ARBOR | Fellows, R. F. | HQ-SL | Liu, W. C. | NGR 23-005-094 | 2578 |
| 31 | UNIV MICH-ANN ARBOR | Fellows, R. F. | HQ-SL | Bartman, F. L. | NGR 23-005-540 | 2586 |
| 31 | UNIV MICH-ANN ARBOR | Cauffman, D. P. | HQ-ST | Nagy, A. F. | NGR 23-005-015 | 2577 |
| 31 | UNIV MICH-ANN ARBOR | King, J., Jr. | HQ-SU | Donahue, T. M. | NSG 7209 | 2604 |
| 31 | U MINN-MNPLS-ST PAUL | Thorley, G. W. | ARC | Nier, A. O. | NAS 2-8812 | 2617 |
| 31 | U MINN-MNPLS-ST PAUL | Corrigan, J. P. | GSFC | Nier, A. O. | NAS 5-11438 | 2621 |
| 31 | U MINN-MNPLS-ST PAUL | Beswick, A. G. | LARC | Nier, A. O. | NAS 1-11676 | 2615 |
| 31 | U MINN-MNPLS-ST PAUL | Keating, G. M. | LARC | Mauersberger, K. | NAS 1-13712 | 2616 |
| 31 | U MINN-MNPLS-ST PAUL | Fellows, R. F. | HQ-SL | Nier, A. O. | NGL 24-005-009 | 2628 |
| 31 | U MINN-MNPLS-ST PAUL | Fellows, R. F. | HQ-SL | Nier, A. O. | NGR 24-005-196 | 2633 |
| 31 | U MINN-MNPLS-ST PAUL | King, J., Jr. | HQ-SU | Mauersberger, K. | NSG 7221 | 2647 |
| 31 | UNIV MO-COLUMBIA | Curran, R. J. | GSFC | Schuster, B. G. | NAS 5-20818 | 2688 |
| 31 | UNIV MO-COLUMBIA | Smith, R. E. | MSFC | Plummer, P. L. | NAS 8-31150 | 2690 |
| 31 | UNIV MO-COLUMBIA | Smith, R. E. | MSFC | Dunipace, K. R. | NAS 8-31849 | 2692 |
| 31 | UNIV NEBRASKA-LINCLN | Fellows, R. F. | HQ-SL | Samson, J. A. | NGR 28-004-021 | 2726 |
| 31 | UNIV NEVADA-DRI | Smith, R. E. | MSFC | Squires, P. | NAS 8-31470 | 2728 |
| 31 | UNIV NEVADA-DRI | Schrick, B. J. | MSFC | Squires, P. | NAS 8-31776 | 2729 |
| 31 | UNIV OF NEVADA-RENO | Smith, R. E. | MSFC | Squires, P. | NAS 8-31780 | 2732 |
| 31 | UNIV OF NEW MEXICO | Haughney, L. C. | ARC | Peterson, A. W. | NSG 2052 | 2838 |
| 31 | UNIV OF NEW MEXICO | Hyder, C. L. | GSFC | Regener, V. H. | NCA 5-31 | 2821 |
| 31 | UNIV OF NEW MEXICO | Jones, H. P. | GSFC | Regener, V. H. | NCA 5-32 | 2822 |
| 31 | UNIV OF NEW MEXICO | Hyder, C. L. | GSFC | Regener, V. H. | NCA 5-34 | 2823 |
| 31 | UNIV OF NEW MEXICO | Maran, S. P. | GSFC | John, R. S. | NCA 5-36 | 2824 |
| 31 | UNIV OKLAHOMA-NORMAN | Turner, R. E. | MSFC | Inman, R. L. | NAS 8-31333 | 3173 |
| 31 | UNIV OKLAHOMA-NORMAN | Camp, D. W. | MSFC | Inman, R. L. | NAS 8-31377 | 3174 |
| 31 | UNIV OF PITTSBURGH | Dubin, M. | HQ-SA | Zipf, E. C., Jr. | NGR 39-011-113 | 3282 |
| 31 | UNIV OF PITTSBURGH | Fellows, R. F. | HQ-SL | Fite, W. L. | NGL 39-011-013 | 3277 |
| 31 | UNIV OF PITTSBURGH | Fellows, R. F. | HQ-SL | Zipf, E. C., Jr. | NGL 39-011-030 | 3278 |
| 31 | UNIV OF PITTSBURGH | Fellows, R. F. | HQ-SL | Biondi, M. A. | NGR 39-011-137 | 3283 |
| 31 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | McCormick, P. T. | NCA 2-685507 | 1681 |
| 31 | UNIV OF SANTA CLARA | Hochstein, L. I. | ARC | Tomlinson, G. A. | NCA 2-685614 | 1690 |
| 31 | UNIV SO CAROLINA-COL | Fellows, R. F. | HQ-SL | Durig, J. R. | NGL 41-002-003 | 3311 |
| 31 | UNIV OF SOUTHERN CAL | Fellows, R. F. | HQ-SL | Maxworthy, T. | NGR 05-018-178 | 1713 |
| 31 | UNIV OF SOUTHERN CAL | Fellows, R. F. | HQ-SL | Judge, D. L. | NGR 05-018-180 | 1714 |
| 31 | UNIV TENNESSEE-KNOXV | Kunde, V. G. | GSFC | Fox, K. | NAS 5-20672 | 3329 |
| 31 | UNIV TENNESSEE-KNOXV | Hill, K. | MSFC | Frost, W. | NAS 8-31718 | 3335 |

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| 31 | UNIV TENNESSEE-KNOXV | Fichtl, G. H. | MSFC | Frost, W. | NAS 8-32118 | 3337 |
| 31 | UNIV TENNESSEE-KNOXV | Fellows, R. F. | HQ-SL | Gailar, N. M. | NGL 43-001-006 | 3338 |
| 31 | U TENNESSEE-MEMPHIS | Allen, W. K. | GSFC | Rochelle, R. W. | NAS 5-22495 | 3350 |
| 31 | UNIV TEXAS-DALLAS | Hall, C. F. | ARC | Hoffman, J. H. | NAS 2-8802 | 3522 |
| 31 | UNIV TEXAS-DALLAS | Corrigan, J. P. | GSFC | Hoffman, J. H. | NAS 5-11406 | 3523 |
| 31 | UNIV TEXAS-DALLAS | Corrigan, J. P. | GSFC | Hanson, W. B. | NAS 5-11407 | 3524 |
| 31 | UNIV TEXAS-DALLAS | Brace, L. H. | GSFC | Heikkila, W. J. | NSG 5085 | 3537 |
| 31 | UNIV TEXAS-DALLAS | Brace, L. H. | GSFC | Hoffman, J. H. | NSG 5087 | 3538 |
| 31 | UNIV TEXAS-DALLAS | Fellows, R. F. | HQ-SL | Johnson, F. S. | NGL 44-004-001 | 3528 |
| 31 | UNIV TEXAS-DALLAS | Fellows, R. F. | HQ-SL | Johnson, F. S. | NGL 44-004-026 | 3529 |
| 31 | UNIV TEXAS-DALLAS | Williams, R. J. | HQ-SL | Hodges, R. R., Jr. | NSG 7034 | 3539 |
| 31 | UNIV TEXAS-DALLAS | Taylor, W. W. | HQ-ST | Hanson, W. B. | NGR 44-004-120 | 3532 |
| 31 | UNIV TEXAS-DALLAS | Schmerling, E. R. | HQ-ST | Heikkila, W. J. | NGR 44-004-150 | 3536 |
| 31 | UNIV TEXAS-DALLAS | Schmerling, E. R. | HQ-ST | Hoffman, J. H. | NSG 7107 | 3540 |
| 31 | UNIV OF UTAH | Hardesty, C. A. | LARC | Weil, H. | NGL 45-003-025 | 3565 |
| 31 | UNIV OF UTAH | Duke, J. R. | WFC | Kao, S. K. | NAS 6-2498 | 3559 |
| 31 | UNIV OF UTAH | Duke, J. R. | WFC | Staffanson, F. L. | NAS 6-2627 | 3560 |
| 31 | UNIV OF WASHINGTON | Eberstein, I. | GSFC | Leovy, C. B. | NSG 5039 | 3759 |
| 31 | UNIV OF WASHINGTON | Williams, T. S., Jr. | LARC | Leovy, C. B. | NAS 1-9694 | 3735 |
| 31 | UNIV OF WASHINGTON | Russell, J. M., III | LARC | Leovy, C. B. | NAS 1-14341 | 3736 |
| 31 | UNIV OF WASHINGTON | Fellows, R. F. | HQ-SL | Leovy, C. B. | NGR 48-002-162 | 3757 |
| 31 | UNIV OF WASHINGTON | Fellows, R. F. | HQ-SL | Leovy, C. B. | NSG 7085 | 3760 |
| 31 | UNIV WISC-MADISON | Hall, C. F. | ARC | Suomi, V. E. | NAS 2-8813 | 3774 |
| 31 | UNIV WISC-MADISON | Theon, J. S. | GSFC | Suomi, V. E. | NAS 5-21798 | 3777 |
| 31 | UNIV WISC-MADISON | Moody, J. C. | GSFC | Suomi, V. E. | NAS 5-21965 | 3778 |
| 31 | UNIV WISC-MADISON | Worrall, W. | GSFC | Kraushaar, W. L. | NAS 5-22410 | 3780 |
| 31 | UNIV WISC-MADISON | Greaves, J. R. | GSFC | Suomi, V. E. | NAS 5-23296 | 3782 |
| 31 | UNIV WISC-MADISON | Greaves, J. R. | GSFC | Suomi, V. E. | NAS 5-23462 | 3783 |
| 31 | UNIV WISC-MADISON | Halem, M. | GSFC | Suomi, V. E. | NGR 50-002-215 | 3796 |
| 31 | UNIV WISC-MADISON | Northam, G. B. | LARC | Weinman, J. A. | NAS 1-14136 | 3771 |
| 31 | UNIV WISC-MADISON | Fellows, R. F. | HQ-SL | Suomi, V. E. | NGR 50-002-189 | 3794 |
| 31 | UNIV OF WYOMING | Crumbly, K. H. | LARC | Pepin, T. J. | NAS 1-13213 | 3808 |
| 31 | UNIV OF WYOMING | Hedgepeth, K. D. | LARC | Pepin, T. J. | NAS 1-13797 | 3809 |
| 31 | UNIV OF WYOMING | McCormick, M. P. | LARC | Pepin, T. J. | NAS 1-14373 | 3810 |
| 31 | UNIV OF WYOMING | Schrick, B. J. | MSFC | Vali, G. | NAS 8-32067 | 3811 |
| 31 | UNIV OF WYOMING | King, J., Jr. | HQ-SU | Hofmann, D. J. | NSG 7207 | 3813 |
| 31 | UTAH STATE UNIV | Lowenstein, M. | ARC | Shaw, A. W. | NAS 2-8108 | 3573 |
| 31 | UTAH STATE UNIV | King, J., Jr. | HQ-SU | Baker, K. D. | NSG 7210 | 3578 |
| 31 | VIRGINIA POLY INST | Byvik, C. E. | LARC | Wightman, J. P. | NAS 1-10646 | 3689 |
| 31 | VIRGINIA POLY INST | Campbell, J. W. | LARC | Myers, R. H. | NSG 1182 | 3716 |
| 31 | VIRGINIA POLY INST | Carr, R. E. | WFC | Tieleman, H. W. | NGL 47-004-067 | 3697 |
| 31 | WASHINGTON ST UNIV | King, J., Jr. | HQ-SU | Rasmussen, R. A. | NSG 7214 | 3765 |
| 31 | YALE UNIVERSITY | Fellows, R. F. | HQ-SL | Cross, R. J., Jr. | NGL 07-004-043 | 1825 |
| 31 | YORK UNIVERSITY | Baker, C. E. | LERC | Schiff, H. I. | NGR 52-134-005 | 3817 |
| 32 | ARIZONA STATE UNIV | Bunch, T. | ARC | Moore, C. B. | NCA 2-35602 | 1094 |
| 32 | ARIZONA STATE UNIV | French, B. M. | HQ-SL | Moore, C. B. | NGL 03-001-001 | 1095 |
| 32 | ARIZONA STATE UNIV | Williams, R. J. | HQ-SL | Larimer, J. W. | NSG 7040 | 1098 |
| 32 | ARIZONA STATE UNIV | Williams, R. J. | HQ-SL | Holloway, J. R. | NSG 7217 | 1099 |
| 32 | BOSTON UNIVERSITY | Young, R. S. | HQ-SB | Margulis, L. | NGR 22-004-025 | 2374 |
| 32 | BRIGHAM YOUNG UNIV | Phinney, W. C. | JSC | Laole, G. H. | NAS 9-14499 | 3552 |
| 32 | BROWN UNIVERSITY | Harris, J. W. | JSC | Rutherford, M. J. | NGR 40-002-123 | 3298 |
| 32 | BROWN UNIVERSITY | Dwornik, S. E. | HQ-SL | Mutch, T. A. | NGR 40-002-088 | 3295 |
| 32 | BROWN UNIVERSITY | Williams, R. J. | HQ-SL | Head, J. W., Jr. | NGR 40-002-116 | 3297 |
| 32 | BROWN UNIVERSITY | Kosofsky, L. J. | HQ-SM | Head, J. W., III | NASW 2827 | 3294 |
| 32 | CALIF INST OF TECH | Young, R. S. | HQ-SB | Bonner, J. | NGR 05-002-310 | 1227 |
| 32 | CALIF INST OF TECH | Williams, R. J. | HQ-SL | Ahrens, T. J. | NGL 05-002-105 | 1204 |
| 32 | CALIF INST OF TECH | Dwornik, S. E. | HQ-SL | Murray, B. C. | NGR 05-002-117 | 1215 |
| 32 | CALIF INST OF TECH | Dwornik, S. E. | HQ-SL | Shoemaker, E. M. | NGR 05-002-303 | 1225 |

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| 32 | CALIF INST OF TECH | Fellows, R. F. | HQ-SL | Neugebauer, G. | NSG 7094 | 1237 |
| 32 | CALIF INST OF TECH | Williams, R. J. | HQ-SL | Ahrens, T. J. | NSG 7129 | 1240 |
| 32 | CALIF INST OF TECH | Dwornik, S. E. | HQ-SL | Murray, B. C. | NSG 7155 | 1243 |
| 32 | CALIF INST OF TECH | Dwornik, S. E. | HQ-SL | Anderson, D. L. | NSG 7160 | 1244 |
| 32 | CALIF INST OF TECH | Williams, R. J. | HQ-SL | Burnett, D. S. | NSG 7202 | 1246 |
| 32 | CALIF INST OF TECH | Bryson, R. P. | HQ-SM | Anderson, D. L. | NGL 05-002-069 | 1203 |
| 32 | CALIF INST OF TECH | Stuart-Alexander, D. E. | HQ-SM | Burnett, D. S. | NSG 7023 | 1235 |
| 32 | CALIF INST OF TECH | Bryson, R. P. | HQ-SM | Wasserburg, G. J. | NSG 7084 | 1236 |
| 32 | CAL STATE U-HAYWARD | Zill, L. P. | ARC | Warnke, D. E. | NCA 2-290501 | 1259 |
| 32 | CITY COLLEGE OF N Y | Rossi, L. C. | WFC | Pierson, W. J. | NAS 6-2439 | 2848 |
| 32 | CITY U N Y-GRAD SCHL | Kosofsky, L. J. | HQ-SM | Saxena, S. K. | NSG 7028 | 2858 |
| 32 | COLORADO STATE UNIV | Carpenter, L. H. | GSFC | Thompson, E. G. | NGR 06-002-191 | 1747 |
| 32 | COLUMBIA UNIVERSITY | Smith, D. E. | GSFC | Bilham, R. G. | NSG 5072 | 2889 |
| 32 | COLUMBIA UNIVERSITY | Ungar, S. G. | GSFC | Webb, K. E. | NSG 5080 | 2891 |
| 32 | COLUMBIA UNIVERSITY | Harris, J. W. | JSC | Schreiber, E. | NSG 9025 | 2898 |
| 32 | COLUMBIA UNIVERSITY | Stanley, H. R. | WFC | Talwani, M. | NAS 6-2519 | 2871 |
| 32 | COLUMBIA UNIVERSITY | Williams, R. J. | HQ-SL | Langseth, M. G. | NSG 7194 | 2895 |
| 32 | COLUMBIA UNIVERSITY | French, B. M. | HQ-SL | O'Nions, R. K. | NSG 7200 | 2896 |
| 32 | CORNELL UNIVERSITY | Smith, D. E. | GSFC | Turcotte, D. L. | NSG 5060 | 2931 |
| 32 | CORNELL UNIVERSITY | Williams, R. J. | HQ-SL | Kuckes, A. F. | NGR 33-010-178 | 2920 |
| 32 | CORNELL UNIVERSITY | Dwornik, S. E. | HQ-SL | Sagan, C. E. | NGR 33-010-220 | 2925 |
| 32 | CORNELL UNIVERSITY | Dwornik, S. E. | HQ-SL | Veverka, J. | NSG 7156 | 2935 |
| 32 | CORNELL UNIVERSITY | Stuart-Alexander, D. E. | HQ-SM | Gold, T. | NGL 33-010-005 | 2907 |
| 32 | CORNELL UNIVERSITY | Stuart-Alexander, D. E. | HQ-SM | Turcotte, D. L. | NGR 33-010-108 | 2914 |
| 32 | DE ANZA COLLEGE | Blanchard, M. B. | ARC | Greisen, K. I. | NSG 2005 | 1268 |
| 32 | FAIRLEIGH-DICKINSON U | Kosofsky, L. J. | HQ-SM | Adams, J. B. | NGL 31-006-010 | 2745 |
| 32 | FAIRLEIGH-DICKINSON U | Kosofsky, L. J. | HQ-SM | Hartung, J. B. | NSG 7047 | 2747 |
| 32 | FLORIDA STATE UNIV | Schnetzler, C. C. | GSFC | Buie, B. F. | NAS 5-22578 | 1907 |
| 32 | FLORIDA STATE UNIV | Williams, T. S., Jr. | LARC | Hess, S. K. | NAS 1-9693 | 1906 |
| 32 | GEORGIA INST OF TECH | Downs, S. W., Jr. | MSFC | Faust, C. E. | NAS 8-31990 | 1978 |
| 32 | GEORGIA SOUTHWESTN COL | Bensko, J. | MSFC | Arden, D. D. | NAS 8-30884 | 2000 |
| 32 | HARVARD UNIVERSITY | Young, R. S. | HQ-SB | Barghoorn, E. S. | NGL 22-007-069 | 2392 |
| 32 | HARVARD UNIVERSITY | Dwornik, S. E. | HQ-SL | Cameron, A. G. | NGR 22-007-269 | 2401 |
| 32 | HARVARD UNIVERSITY | Williams, R. J. | HQ-SL | Cameron, A. G. | NSG 7191 | 2413 |
| 32 | INDIANA U-BLOOMINGTN | Young, R. S. | HQ-SB | Hayes, J. M. | NGR 15-003-118 | 2111 |
| 32 | IOWA STATE UNIV | Zill, L. P. | ARC | Iversen, J. D. | NCA 2-340501 | 2151 |
| 32 | IOWA STATE UNIV | Zill, L. P. | ARC | Iversen, J. D. | NCA 2-340601 | 2157 |
| 32 | JOHNS HOPKINS UNIV | Coates, R. J. | GSFC | Marsh, B. D. | NSG 5090 | 2290 |
| 32 | LEHIGH UNIVERSITY | Stuart-Alexander, D. E. | HQ-SM | Goldstein, J. I. | NGR 39-007-043 | 3218 |
| 32 | MASS INST OF TECH | Fichti, G. H. | MSFC | Hart, J. E. | NAS 8-31149 | 2437 |
| 32 | MASS INST OF TECH | Brunk, W. E. | HQ-SL | Barrett, A. H. | NGL 22-009-016 | 2446 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | McCord, T. B. | NGR 22-009-790 | 2483 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | Counselman, C. C., III | NSG 7010 | 2518 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | McCord, T. B. | NSG 7048 | 2519 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | Lewis, J. S. | NSG 7077 | 2520 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | Toksoz, M. N. | NSG 7081 | 2521 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | Madden, T. R. | NSG 7115 | 2523 |
| 32 | MASS INST OF TECH | Williams, R. J. | HQ-SL | Counselman, C. C., III | NSG 7118 | 2524 |
| 32 | MASS INST OF TECH | Kosofsky, L. J. | HQ-SM | Press, F. | NGL 22-009-187 | 2450 |
| 32 | MASS INST OF TECH | Bryson, R. P. | HQ-SM | McCord, T. B. | NGR 22-009-350 | 2461 |
| 32 | NEW MEX INST MINING | Broderick, J. C. | GSFC | Vander Linden, K. | NAS 5-20916 | 2796 |
| 32 | NORTHERN ARIZONA U | Dwornik, S. E. | HQ-SL | Cotera, A. S. | NSG 7182 | 1100 |
| 32 | NORTHWESTERN UNIV | Bryson, R. P. | HQ-SM | Hynek, J. A. | NGL 14-007-016 | 2039 |
| 32 | OHIO STATE UNIV | Marsh, J. G. | GSFC | Rapp, R. H. | NGR 36-008-161 | 3122 |
| 32 | OHIO STATE UNIV | Stanley, H. R. | WFC | Rapp, R. H. | NAS 6-2484 | 3115 |
| 32 | OHIO STATE UNIV | Murphy, J. P. | HQ-ES | Mueller, I. I. | NASW 2435 | 3117 |
| 32 | OHIO STATE UNIV | Murphy, J. P. | HQ-ES | Mueller, I. I. | NGR 36-008-204 | 3123 |
| 32 | OREGON STATE UNIV | Dwornik, S. E. | HQ-SL | Komar, P. D. | NSG 7178 | 3185 |

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|---------------|-----------------------|-------------------------|--------------------|---------------------------------|------------------------------|------------|
| 32 | OREGON STATE UNIV | Bryson, R. P. | HQ-SM | Schmitt, R. A. | NGL 38-002-020 | 3182 |
| 32 | PAN AMERICAN UNIV | Huntress, W. T. | JPL | Glaser, F. M. | NGR 44-087-002 | 3377 |
| 32 | PENN STATE U-UNIV PK | Schnetzler, C. C. | GSFC | McMurtry, G. J. | NAS 5-22304 | 3228 |
| 32 | PENN STATE U-UNIV PK | Podwysocki, M. H. | GSFC | Gold, D. P. | NAS 5-22822 | 3229 |
| 32 | PENN STATE U-UNIV PK | Williams, R. J. | HQ-SL | Muan, A. | NSG 7120 | 3260 |
| 32 | PENN STATE U-UNIV PK | Williams, R. J. | HQ-SL | Alexander, S. S. | NSG 7193 | 3261 |
| 32 | PENN STATE U-UNIV PK | Bryson, R. P. | HQ-SM | Gold, D. P. | NGL 39-009-010 | 3239 |
| 32 | PRINCETON UNIVERSITY | Leckrone, D. S. | GSFC | Jenkins, E. B. | NAS 5-22360 | 2755 |
| 32 | PRINCETON UNIVERSITY | Williams, R. J. | HQ-SL | Phinney, R. A. | NSG 7080 | 2788 |
| 32 | PURDUE UNIVERSITY | Langel, R. A. | GSFC | Hinze, W. J. | NAS 5-22816 | 2116 |
| 32 | PURDUE UNIVERSITY | Lynch, T. J. | GSFC | Wintz, P. A. | NSG 5010 | 2140 |
| 32 | PURDUE UNIVERSITY | French, B. M. | HQ-SL | Lipschutz, M. E. | NGL 15-005-140 | 2123 |
| 32 | QUEENS COLLEGE | Harris, J. W. | JSC | Coch, N. K. | NSG 9022 | 2970 |
| 32 | RICE UNIVERSITY | Meese, K. J. | GSFC | Anderson, H. R., Jr. | NAS 5-9317 | 3382 |
| 32 | RICE UNIVERSITY | Harris, J. W. | JSC | Heymann, D. | NGL 44-006-127 | 3392 |
| 32 | RICE UNIVERSITY | Williams, R. J. | HQ-ST | Freeman, J. W., Jr. | NSG 7157 | 3399 |
| 32 | ST LAWRENCE UNIV | Short, N. M. | GSFC | Erickson, J. M. | NSG 5018 | 2988 |
| 32 | ST MARY'S UNIVERSITY | Horz, F. | JSC | Hanss, R. E. | NSG 9039 | 3400 |
| 32 | SAN DIEGO STATE UNIV | Williams, R. J. | HQ-SL | Reh fuss, D. E. | NSG 7026 | 1275 |
| 32 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Bornstein, R. D. | NCA 2-675607 | 1313 |
| 32 | SAN JOSE STATE UNIV | Blanchard, M. B. | ARC | Maddock, M. E. | NCA 2-675613 | 1318 |
| 32 | SO DAKOTA STATE UNIV | Gordon, F. | GSFC | Schmer, F. | NAS 5-20982 | 3315 |
| 32 | STANFORD UNIVERSITY | Schutt, J. B. | GSFC | Lyon, R. J. | NSG 5050 | 1436 |
| 32 | STANFORD UNIVERSITY | Dwornik, S. E. | HQ-SL | Howard, H. T. | NGR 05-020-649 | 1408 |
| 32 | STANFORD UNIVERSITY | Williams, R. J. | HQ-SL | Tyler, G. L. | NSG 7029 | 1437 |
| 32 | STANFORD UNIVERSITY | Williams, R. J. | HQ-SL | Nur, A. M. | NSG 7117 | 1441 |
| 32 | STATE UNIV NY-BUFFAL | Dwornik, S. E. | HQ-SL | King, J. S. | NGR 33-015-108 | 3002 |
| 32 | ST U NY COL-GENESE | Hardee, S. N. | JSC | Young, R. A. | NAS 9-12770 | 3029 |
| 32 | STATE U NY-STONY BRK | Harris, J. W. | JSC | Hartwig, J. B. | NSG 9013 | 3025 |
| 32 | STATE U NY-STONY BRK | Williams, R. J. | HQ-SL | Papike, J. J. | NSG 7150 | 3023 |
| 32 | STATE U NY-STONY BRK | Williams, R. J. | HQ-SL | Schaeffer, O. A. | NSG 7225 | 3024 |
| 32 | STATE U NY-STONY BRK | Stuart-Alexander, D. E. | HQ-SM | Hartung, J. B. | NSG 7036 | 3022 |
| 32 | TEXAS A&M UNIVERSITY | Buras, N. T. | JSC | Schell, J. A. | NAS 9-14875 | 3429 |
| 32 | TEXAS A&M UNIVERSITY | Williams, R. J. | HQ-SL | Rowe, M. W. | NGR 44-001-152 | 3436 |
| 32 | TEXAS A&M UNIVERSITY | Williams, R. J. | HQ-SL | Gangi, A. F. | NSG 7189 | 3440 |
| 32 | TULANE UNIVERSITY | Dwornik, S. E. | HQ-SL | Meyer, J. D. | NGR 19-002-038 | 2263 |
| 32 | UNIV ALA-HUNTSVILLE | Bensko, J. | MSFC | Doyle, L. | NAS 8-31345 | 1061 |
| 32 | UNIV ALA-TUSCALOOSA | Bensko, J. | MSFC | Hughes, T. H. | NAS 8-29936 | 1074 |
| 32 | UNIV ALA-TUSCALOOSA | Bensko, J. | MSFC | Stow, S. H. | NAS 8-29937 | 1075 |
| 32 | UNIV ALASKA-FAIRBNKS | Broderick, J. C. | GSFC | Gedney, L. | NAS 5-20803 | 1083 |
| 32 | UNIV ALASKA-FAIRBNKS | Baldwin, R. R. | JSC | Wescott, E. M. | NAS 9-13945 | 1088 |
| 32 | UNIV OF ARIZONA | Young, R. S. | HQ-SB | Nagy, B. | NGR 03-002-171 | 1139 |
| 32 | UNIV OF ARIZONA | Williams, R. J. | HQ-SL | Strom, R. G. | NGL 03-002-191 | 1135 |
| 32 | UNIV OF ARIZONA | Dwornik, S. E. | HQ-SL | Sonett, C. P. | NGR 03-002-370 | 1144 |
| 32 | UNIV OF ARIZONA | French, B. M. | HQ-SL | Wilkening, L. L. | NSG 7011 | 1157 |
| 32 | UNIV OF ARIZONA | Dwornik, S. E. | HQ-SL | Strom, R. G. | NSG 7146 | 1167 |
| 32 | UNIV OF ARIZONA | Williams, R. J. | HQ-SL | Greenberg, R. | NSG 7201 | 1169 |
| 32 | UNIV OF ARIZONA | French, B. M. | HQ-SL | Gehrels, A. M. | NSG 7246 | 1171 |
| 32 | UNIV OF ARIZONA | French, B. M. | HQ-SL | Zellner, B. H. | NSG 7249 | 1172 |
| 32 | UNIV OF ARIZONA | Hanley, J. B. | HQ-SM | Whitaker, E. A. | NSG 7014 | 1158 |
| 32 | UNIV OF ARIZONA | Stuart-Alexander, D. E. | HQ-SM | Sonett, C. P. | NSG 7020 | 1159 |
| 32 | U ARKANSAS-MONTICELLO | Dwornik, S. E. | HQ-SL | Dehon, R. A. | NGR 04-008-001 | 1183 |
| 32 | U ARKANSAS-MONTICELLO | Williams, R. J. | HQ-SL | Dehon, R. A. | NSG 7216 | 1184 |
| 32 | U ARKANSAS-MONTICELLO | Dwornik, S. E. | HQ-SL | Dehon, R. A. | NSG 7244 | 1185 |
| 32 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Sherman, F. S. | NCA 2-50302 | 1453 |
| 32 | UNIV CALIF-BERKELEY | Stonesifer, G. R. | GSFC | Colwell, R. N. | NAS 5-20969 | 1445 |
| 32 | UNIV CALIF-BERKELEY | Gallagher, W. F. | GSFC | Anderson, K. A. | NAS 5-22307 | 1447 |
| 32 | UNIV CALIF-BERKELEY | Young, R. S. | HQ-SB | Calvin, M. | NGL 05-003-003 | 1466 |

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| 32 | UNIV CALIF-DAVIS | Millard, J. | ARC | Hatfield, J. L. | NCA 2-180607 | 1524 |
| 32 | UNIV CALIF-DAVIS | Schmerling, E. R. | HQ-ST | McIlwain, C. E. | NGR 05-004-006 | 1526 |
| 32 | UNIV CALIF-DAVIS | Pollack, J. B. | HQ- | White, B. R. | NCA 2-180605 | 1523 |
| 32 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Coleman, P. J., Jr. | NCA 2-390503 | 1550 |
| 32 | UNIV CALIF-L ANGELES | Wales, R. O. | GSFC | McPherron, R. L. | NAS 5-11674 | 1538 |
| 32 | UNIV CALIF-L ANGELES | Murphy, J. P. | HQ-ES | Kaula, W. M. | NSG 7002 | 1585 |
| 32 | UNIV CALIF-L ANGELES | Young, R. S. | HQ-SB | Kaplan, I. R. | NGR 05-007-221 | 1562 |
| 32 | UNIV CALIF-L ANGELES | Young, R. S. | HQ-SB | Schopf, J. W. | NGR 05-007-407 | 1573 |
| 32 | UNIV CALIF-L ANGELES | Dwornik, S. E. | HQ-SL | Schubert, G. | NGR 05-007-317 | 1565 |
| 32 | UNIV CALIF-L ANGELES | French, B. M. | HQ-SL | Wasson, J. T. | NGR 05-007-329 | 1568 |
| 32 | UNIV CALIF-L ANGELES | Williams, R. J. | HQ-SL | Coleman, P. J., Jr. | NGR 05-007-351 | 1571 |
| 32 | UNIV CALIF-L ANGELES | Williams, R. J. | HQ-SL | Kieffer, S. W. | NSG 7052 | 1586 |
| 32 | UNIV CALIF-L ANGELES | Stuart-Alexander, D. E. | HQ-SM | Kaula, W. M. | NGL 05-007-002 | 1553 |
| 32 | UNIV CALIF-L ANGELES | Bryson, R. P. | HQ-SM | Kennedy, G. C. | NGL 05-007-006 | 1557 |
| 32 | UNIV CALIF-SAN DIEGO | Mead, G. D. | GSFC | Jordan, T. H. | NSG 5089 | 1638 |
| 32 | UNIV CALIF-SAN DIEGO | Williams, R. J. | HQ-SL | Arrhenius, G. | NGL 05-009-002 | 1609 |
| 32 | UNIV CALIF-SAN DIEGO | French, B. F. | HQ-SL | Arnold, J. R. | NGL 05-009-004 | 1610 |
| 32 | UNIV CALIF-SAN DIEGO | Williams, R. J. | HQ-SL | Arnold, J. R. | NGR 05-005-005 | 1616 |
| 32 | UNIV CALIF-SAN DIEGO | Williams, R. J. | HQ-SL | Arnold, J. R. | NSG 7027 | 1640 |
| 32 | UNIV CALIF-SAN DIEGO | Dwornik, S. E. | HQ-SL | Alfven, H. | NSG 7102 | 1642 |
| 32 | UNIV CALIF-SAN DIEGO | French, B. M. | HQ-SL | MacDougall, J. D. | NSG 7121 | 1643 |
| 32 | UNIV CALIF-SAN DIEGO | Dwornik, S. E. | HQ-SL | Alfven, H. | W-14108 | 1645 |
| 32 | UNIV CALIF-S BARBARA | Harris, J. W. | JSC | Tilton, G. R. | NGR 05-010-081 | 1658 |
| 32 | UNIV CALIF-S BARBARA | Young, R. S. | HQ-SB | Cloud, P. E. | NGR 05-010-035 | 1656 |
| 32 | UNIV CALIF-S BARBARA | Dwornik, S. E. | HQ-SL | Peale, S. J. | NGR 05-010-062 | 1657 |
| 32 | UNIV CALIF-S BARBARA | Bryson, R. P. | HQ-SM | Fuller, M. D. | NSG 7122 | 1660 |
| 32 | UNIV OF CHICAGO | French, B. M. | HQ-SL | Anders, E. | NGL 14-001-010 | 2058 |
| 32 | UNIV OF CHICAGO | Dwornik, S. E. | HQ-SL | Turkevich, A. L. | NGR 14-001-135 | 2064 |
| 32 | UNIV OF CHICAGO | French, B. M. | HQ-SL | Grossman, L. | NGR 14-001-249 | 2071 |
| 32 | UNIV OF CHICAGO | Williams, R. J. | HQ-SL | Schramm, D. N. | NSG 7212 | 2074 |
| 32 | UNIV COLORADO-BOLDR | Broderick, J. C. | GSFC | Ives, J. D. | NAS 5-20914 | 1760 |
| 32 | UNIV COLORADO-BOLDR | Harris, J. W. | JSC | Spetzler, H. A. | NSG 9036 | 1802 |
| 32 | UNIV COLORADO-BOLDR | Dwornik, S. E. | HQ-SL | Peterson, J. E. | NGR 06-003-199 | 1782 |
| 32 | UNIV OF GEORGIA | Dwornik, S. E. | HQ-SL | Howard, H. T. | NGR 11-003-037 | 2016 |
| 32 | UNIV OF HAWAII-MANOA | Strickland, A. T. | HQ-SL | Jefferies, J. T. | NGR 12-001-127 | 2029 |
| 32 | UNIV HOUSTON-HOUSTON | Young, R. S. | HQ-SB | Oro, J. | NGR 44-005-002 | 3465 |
| 32 | UNIV HOUSTON-HOUSTON | Dwornik, S. E. | HQ-SL | King, E. A., Jr. | NGR 44-005-131 | 3467 |
| 32 | UNIV HOUSTON-HOUSTON | Williams, R. J. | HQ-SL | Butler, J. C. | NSG 7198 | 3473 |
| 32 | UNIV OF IOWA | Amsbury, D. L. | JSC | Hoppin, R. A. | NAS 9-13313 | 2177 |
| 32 | UNIV OF KANSAS | Broderick, J. C. | GSFC | Haralick, R. M. | NAS 5-20943 | 2188 |
| 32 | UNIV OF KANSAS | Eckerman, J. | GSFC | Moore, R. K. | NAS 5-22325 | 2189 |
| 32 | UNIV OF KANSAS | Dwornik, S. E. | HQ-SL | Warnke, D. E. | NGR 17-002-106 | 2196 |
| 32 | UNIV MARYLAND-COL PK | Philpotts, J. A. | GSFC | Weidner, J. R. | NGR 21-002-368 | 2334 |
| 32 | UNIV MARYLAND-COL PK | Rango, A. | GSFC | Ragan, R. M. | NGR 21-002-399 | 2337 |
| 32 | UNIV MARYLAND-COL PK | Salomonson, V. V. | GSFC | Ragan, R. M. | NSG 5017 | 2349 |
| 32 | UNIV MARYLAND-COL PK | Cressy, P. J. | GSFC | Sommer, S. E. | NSG 5047 | 2352 |
| 32 | UNIV MARYLAND-COL PK | Philpotts, J. A. | GSFC | Adler, I. | NSG 5094 | 2358 |
| 32 | UNIV MARYLAND-COL PK | Nava, D. F. | GSFC | Weidner, J. R. | NSG 5121 | 2360 |
| 32 | UNIV MARYLAND-COL PK | Williams, R. J. | HQ-SL | Adler, I. | NSG 7046 | 2364 |
| 32 | UNIV MARYLAND-COL PK | Alexander, D. E. | HQ-SM | Wasilewski, P. | NSG 7017 | 2363 |
| 32 | UNIV OF MASS-AMHERST | Dwornik, S. E. | HQ-SL | McGill, G. E. | NGR 22-010-076 | 2540 |
| 32 | UNIV OF MIAMI | French, B. M. | HQ-SL | Fisher, D. E. | NSG 7245 | 1946 |
| 32 | UNIV MICH-ANN ARBOR | Bryson, R. P. | HQ-SM | Evans, B. J. | NGR 23-005-537 | 2585 |
| 32 | U MINN-MNPLS-ST PAUL | Harris, J. W. | JSC | Banerjee, S. K. | NGR 24-005-248 | 2635 |
| 32 | UNIV OF NEW MEXICO | Stuart-Alexander, D. E. | HQ-SL | Keil, K. | NGL 32-004-064 | 2832 |
| 32 | UNIV OF NEW MEXICO | Dwornik, S. E. | HQ-SL | Elston, W. E. | NGR 32-004-062 | 2834 |
| 32 | UNIV OF NEW MEXICO | Hanley, J. B. | HQ-SM | Elston, W. E. | NGL 32-004-011 | 2829 |
| 32 | UNIV OF NEW MEXICO | Hanley, J. B. | HQ-SM | Elston, W. E. | NSG 7066 | 2839 |

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| 32 | UNIV OREGON-EUGENE | Teegarden, D. L., Jr. | JSC | Blank, H. R. | NAS 9-9690 | 3186 |
| 32 | UNIV OREGON-EUGENE | Williams, R. J. | HQ-SL | Weill, D. F. | NGR 38-003-020 | 3189 |
| 32 | UNIV OF PENNSYLVANIA | Kosofsky, L. J. | HQ-SM | Friel, J. J. | NSG 7031 | 3268 |
| 32 | UNIV OF PENNSYLVANIA | Kosofsky, L. J. | HQ-SM | Friel, J. J. | NSG 7119 | 3269 |
| 32 | UNIV OF PITTSBURGH | Williams, R. J. | HQ-SL | Hapke, B. W. | NGL 39-011-085 | 3280 |
| 32 | UNIV OF PITTSBURGH | Williams, R. J. | HQ-SL | Hapke, B. W. | NSG 7203 | 3292 |
| 32 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Barker, W. A. | NCA 2-685408 | 1676 |
| 32 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Barker, W. A. | NCA 2-685606 | 1688 |
| 32 | UNIV OF SANTA CLARA | Reynolds, R. T. | ARC | Barker, W. A. | NCA 2-685701 | 1691 |
| 32 | UNIV OF SANTA CLARA | Quaide, W. L. | ARC | Greeley, R. | NGR 05-017-027 | 1693 |
| 32 | UNIV OF SANTA CLARA | Dwornik, S. E. | HQ-SL | Greeley, R. | NGR 05-017-037 | 1696 |
| 32 | UNIV OF SANTA CLARA | Williams, R. J. | HQ-SL | Greeley, R. | NSG 7141 | 1702 |
| 32 | UNIV SO CAROLINA-COL | Dwornik, S. E. | HQ-SL | Nummedal, D. | NSG 7076 | 3312 |
| 32 | UNIV TEXAS-AUSTIN | Kolenkiewicz, R. | GSFC | Tapley, B. D. | NGR 44-012-283 | 3508 |
| 32 | UNIV TEXAS-AUSTIN | Eichelman, W. F. | JSC | Duennebier, F. D. | NAS 9-14405 | 3487 |
| 32 | UNIV TEXAS-AUSTIN | Harris, J. W. | JSC | Gose, W. A. | NSG 9021 | 3520 |
| 32 | UNIV TEXAS-AUSTIN | Stanley, H. R. | WFC | Tapley, B. D. | NAS 6-2454 | 3482 |
| 32 | UNIV TEXAS-AUSTIN | Strickland, A. T. | HQ-SL | Smith, H. J. | NGR 44-012-165 | 3496 |
| 32 | UNIV TEXAS-AUSTIN | Dwornik, S. E. | HQ-SL | Ingerson, F. E. | NGR 44-012-194 | 3497 |
| 32 | UNIV TEXAS-AUSTIN | Young, R. S. | HQ-SL | Parker, P. L. | NGR 44-012-225 | 3500 |
| 32 | UNIV TEXAS-AUSTIN | Dwornik, S. E. | HQ-SL | Devaucouleurs, G. H. | NGR 44-012-279 | 3506 |
| 32 | UNIV TEXAS-AUSTIN | Smith, M. J. | HQ-SL | Muehlberger, W. R. | NSG 7250 | 3519 |
| 32 | UNIV TEXAS-AUSTIN | Bryson, R. P. | HQ-SM | Clabaugh, S. E. | NGL 44-012-045 | 3492 |
| 32 | UNIV OF UTAH | Broderick, J. C. | GSFC | Nackowski, M. | NAS 5-20955 | 3558 |
| 32 | UNIV OF UTAH | Harris, J. W. | JSC | Nash, W. P. | NSG 9024 | 3572 |
| 32 | UNIV OF UTAH | Dwornik, S. E. | HQ-SL | Wilson, R. C. | NGR 45-003-095 | 3567 |
| 32 | UNIV OF UTAH | Bryson, R. P. | HQ-SM | Ward, S. H. | NSG 7090 | 3570 |
| 32 | UNIV OF VIRGINIA | Dwornik, S. E. | HQ-SL | Howard, A. | NGR 47-005-172 | 3669 |
| 32 | UNIV OF VIRGINIA | French, B. M. | HQ-SL | Allen, R. O. | NGR 47-005-176 | 3670 |
| 32 | UNIV OF WASHINGTON | Horz, F. | JSC | Brownlee, D. E. | NAS 9-13743 | 3740 |
| 32 | UNIV OF WASHINGTON | Harris, J. W. | JSC | Adams, J. D. | NSG 9032 | 3763 |
| 32 | UNIV OF WASHINGTON | Dwornik, S. E. | HQ-SL | Vgolihi, F. C. | NGR 48-002-153 | 3755 |
| 32 | UNIV OF WASHINGTON | Williams, R. J. | HQ-SL | Adams, J. B. | NSG 7173 | 3761 |
| 32 | UNIV OF WASHINGTON | Williams, R. J. | HQ-SL | Adams, J. B. | NSG 7174 | 3762 |
| 32 | UNIV WISC-MADISON | Williams, R. J. | HQ-SL | Taylor, J. W. | NSG 7215 | 3805 |
| 32 | UNIV WISC-PARKSIDE | Dwornik, S. E. | HQ-SL | Smith, E. I. | NGR 50-009-001 | 3807 |
| 32 | UTAH STATE UNIV | Young, R. S. | HQ-SB | Swanson, L. W. | NSG 7038 | 3576 |
| 32 | VIRGINIA POLY INST | Dwornik, S. E. | HQ-SL | Gilbert, C. | NSG 7111 | 3732 |
| 32 | WASHINGTON UNIVERSTY | Kelly Iv, W. L. | LARC | Arvidson, R. E. | NSG 1084 | 2714 |
| 32 | WASHINGTON UNIVERSTY | Dwornik, S. E. | HQ-SL | Arvidson, R. E. | NSG 7087 | 2717 |
| 32 | WASHINGTON UNIVERSTY | Stuart-Alexander, D. E. | HQ-SM | Hohenberg, C. M. | NSG 7016 | 2716 |
| 32 | WEST TEXAS ST UNIV | Dwornik, S. E. | HQ-SL | Underwood, J. R. | NGR 44-015-003 | 3550 |
| 32 | YALE UNIVERSITY | Dwornik, S. E. | HQ-SL | Skinner, B. J. | NGR 07-004-157 | 1827 |
| 32 | YALE UNIVERSITY | Williams, R. J. | HQ-SL | Turekian, K. K. | NGR 07-004-166 | 1828 |
| 33 | CAL STATE U-HAYWARD | Zill, L. P. | ARC | Warnke, D. A. | NCA 2-290601 | 1260 |
| 33 | CHESAPEAKE COLLEGE | Exton, R. J. | LARC | Paul, F. W. | NSG 1096 | 2273 |
| 33 | CITY COLLEGE OF N Y | Mueller, J. L. | GSFC | Pierson, W. J. | NAS 5-22392 | 2847 |
| 33 | COLUMBIA UNIVERSITY | Stanley, H. R. | WFC | Kuo, J. T. | NAS 6-2455 | 2870 |
| 33 | JOHNS HOPKINS UNIV | Stanley, H. R. | WFC | Phillips, O. M. | NAS 6-2706 | 2280 |
| 33 | NO CAROLINA STATE U | Stanley, H. R. | WFC | Hiser, H. W. | NAS 6-2617 | 3057 |
| 33 | OREGON STATE UNIV | Mueller, J. L. | GSFC | Zuneveld, R. V. | NAS 5-22319 | 3180 |
| 33 | UNIV ALASKA-FAIRBNKS | Crump, E. | GSFC | Stringer, W. | NAS 5-20959 | 1085 |
| 33 | UNIV CALIF-L ANGELES | Stanley, H. R. | WFC | Kaula, W. M. | NAS 6-2463 | 1540 |
| 33 | UNIV CALIF-L ANGELES | Stanley, H. R. | WFC | Mintz, Y. | NAS 6-2703 | 1541 |
| 33 | UNIV CALIF-S BARBARA | Hovis, W. A. | GSFC | Estes, J. E. | NSG 5106 | 1659 |
| 33 | UNIV CALIF-S BARBARA | Nitschke, H. A. | JSC | Simonett, D. S. | NAS 9-14816 | 1654 |
| 33 | UNIV OF DELAWARE | Crump, E. W. | GSFC | Klemas, V. | NAS 5-20983 | 1831 |
| 33 | UNIV MARYLAND-COL PK | Marini, J. W. | GSFC | Harger, R. O. | NGR 21-002-433 | 2340 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 39 | ADELPHI UNIVERSITY | Tarlton, M. J. | GSFC | Dooher, J. P. | NAS 5-22529 | 2841 |
| 39 | ALABAMA A&M UNIV | McDonough, G. F. | MSFC | Manger, M. C. | NGR 01-001-025 | 1003 |
| 39 | ALCORN STATE UNIV | Wolverton, B. C. | NSTL | Naqvi, S. M. | NSG 8005 | 2651 |
| 39 | AMERICAN UNIVERSITY | Schubert, J. | GSFC | MacLeod, N. H. | NAS 5-21970 | 1835 |
| 39 | AMERICAN UNIVERSITY | Johnson, R. W. | LARC | Anderson, R. R. | NAS 1-12209 | 1834 |
| 39 | BETHUNE-COOKMAN COL | Hammond, T. M. | KSC | Poonai, P. | NGR 10-022-001 | 1897 |
| 39 | BRIGHAM YOUNG UNIV | Cauffman, D. P. | HQ-ST | Jones, D. E. | NGR 45-001-011 | 3553 |
| 39 | BROWN UNIVERSITY | Maestrello, L. | LARC | Liu, J. T. | NSG 1076 | 3299 |
| 39 | CALIF INST OF TECH | Lowman, P. D. | GSFC | Allen, C. R. | NSG 5058 | 1234 |
| 39 | CALIF INST OF TECH | Williams, T. S., Jr. | LARC | Anderson, D. L. | NAS 1-9703 | 1186 |
| 39 | CLEMSON UNIV-CLEMSON | Barnett, T. L. | JSC | Haun, J. R. | NAS 9-14006 | 3305 |
| 39 | COLORADO SCH OF MINE | Morrison, J. R. | HQ-ER | Lee, K. | NGL 06-001-015 | 1720 |
| 39 | COLORADO STATE UNIV | Nelson, D. | GSFC | Vonder Haar, T. H. | NAS 5-22959 | 1724 |
| 39 | COLORADO STATE UNIV | Barnett, T. L. | JSC | Smith, J. A. | NAS 9-14467 | 1732 |
| 39 | COLORADO STATE UNIV | Turner, R. E. | MSFC | Sadeh, W. Z. | NAS 8-28590 | 1725 |
| 39 | CORNELL UNIVERSITY | Vitale, J. A. | HQ-P | Liang, T. | NGL 33-010-171 | 2910 |
| 39 | DC TEACHERS COLLEGE | Westrom, J. L. | GSFC | Bever, R. S. | NGR 09-053-003 | 1845 |
| 39 | DARTMOUTH COLLEGE | Jastrow, R. | GSFC | Huke, R. E. | NSG 5014 | 2734 |
| 39 | DILLARD UNIVERSITY | Paludan, C. T. | MSFC | Rogers, R. | NSG 8018 | 2237 |
| 39 | DREXEL UNIVERSITY | Rogowski, R. S. | LARC | Bandy, A. R. | NSG 1240 | 3207 |
| 39 | FEDERAL CITY COLLEGE | Nava, D. E. | GSFC | Phelps, H. L. | NGR 09-050-019 | 1851 |
| 39 | FLORIDA A&M UNIV | Schehl, T. A. | KSC | Cottrell, P. T. | NGR 10-010-002 | 1898 |
| 39 | FLORIDA INST OF TECH | Lee, W. H. | KSC | Weber, H. P. | NGR 10-015-008 | 1904 |
| 39 | FLORIDA TECH UNIV | Burton, R. | KSC | Osborne, J. | NAS10-8934 | 1911 |
| 39 | FLORIDA TECH UNIV | Buchanan, P. | KSC | Vickers, D. H. | NAS10-8986 | 1912 |
| 39 | FLORIDA TECH UNIV | Lee, W. H. | KSC | Sweet, H. C. | NGR 10-019-004 | 1913 |
| 39 | FLORIDA TECH UNIV | Lee, W. H. | KSC | St John, R. | NGR 10-019-009 | 1914 |
| 39 | GEORGIA INST OF TECH | Paludan, C. T. | MSFC | Dees, J. W. | NAS 8-30653 | 1972 |
| 39 | GEORGIA INST OF TECH | Downs, S. W., Jr. | MSFC | Faust, N. L. | NAS 8-31850 | 1977 |
| 39 | HOWARD UNIVERSITY | Pohly, J. G. | HQ-P | Ferguson, G. A. | NGL 09-011-046 | 1880 |
| 39 | JACKSON STATE UNIV | Wolverton, B. C. | MSFC | Sekhon, B. S. | NGR 25-011-005 | 2653 |
| 39 | JACKSON STATE UNIV | Wolverton, B. C. | MSFC | Perkins, J. | NSG 8015 | 2655 |
| 39 | JACKSON STATE UNIV | Wolverton, B. C. | MSFC | Sekhon, B. S. | NSG 8023 | 2656 |
| 39 | JACKSON STATE UNIV | Wolverton, B. C. | NSTL | Shore, F. | NSG 8026 | 2657 |
| 39 | JACKSON STATE UNIV | Joyce, A. T. | NSTL | Nelson, F. R. | NSG 9016 | 2658 |
| 39 | KANSAS STATE UNIV | Zill, L. P. | ARC | Ahmed, N. | NCA 2-363601 | 2183 |
| 39 | KANSAS STATE UNIV | Barnett, T. L. | JSC | Feyerherm, A. M. | NAS 9-14533 | 2180 |
| 39 | LA STATE U-BAT ROUGE | Paludan, C. T. | MSFC | Maples, D. | NAS 8-30620 | 2244 |
| 39 | LA STATE U-BAT ROUGE | Redding, E. R. | HQ-P | Whitehurst, C. A. | NGL 19-001-097 | 2246 |
| 39 | LA STATE U-BAT ROUGE | Vitale, J. A. | HQ-P | Whitehurst, C. A. | NGL 19-001-105 | 2247 |
| 39 | MASS INST OF TECH | Williams, T. S., Jr. | LARC | Biemann, K. | NAS 1-9684 | 2414 |
| 39 | MICHIGAN STATE UNIV | Vitale, J. A. | HQ-P | Boylan, M. G. | NGL 23-004-083 | 2544 |
| 39 | MISSISSIPPI STATE U | Daniels, J. L., Jr. | MSFC | Miller, W. F. | NAS 8-30623 | 2661 |
| 39 | MISSISSIPPI STATE U | Redding, E. R. | HQ-P | Brown, L. R. | NGL 25-001-040 | 2668 |
| 39 | MISSISSIPPI STATE U | Vitale, J. A. | HQ-P | Miller, W. F. | NGL 25-001-054 | 2669 |
| 39 | NEW YORK UNIVERSITY | McLean, F. E. | LARC | Hoffert, M. I. | NSG 1298 | 2950 |
| 39 | NEW YORK UNIVERSITY | Neustadter, H. E. | LERC | Haydys, W. G. | NGR 33-016-197 | 2947 |
| 39 | NO CAROLINA STATE U | Paludan, C. T. | MSFC | Welby, G. | NAS 8-31984 | 3058 |
| 39 | OHIO STATE UNIV | Hirschmann, E. | GSFC | Founty, R. A. | NAS 5-20521 | 3111 |
| 39 | OHIO STATE UNIV | Zwally, H. J. | GSFC | Rayner, J. N. | NAS 5-23380 | 3114 |
| 39 | OLD DOMINION UNIV | Fuller, W. H., Jr. | LARC | Harris, F. S., Jr. | NSG 1245 | 3647 |
| 39 | OREGON STATE UNIV | Vitale, J. A. | HQ-P | Schrumpf, B. J. | NGL 38-002-053 | 3184 |
| 39 | PAN AMERICAN UNIV | Potter, A. E. | JSC | Lemaster, E. W. | NSG 9033 | 3378 |
| 39 | PENN STATE U-UNIV PK | Szajna, E. F. | GSFC | McMurtry, G. J. | NAS 5-23133 | 3230 |
| 39 | PRAIRIE VIEW A&M U | Potter, A. E. | JSC | Sohel, M. S. | NSG 9006 | 3380 |
| 39 | PURDUE UNIVERSITY | Joosten, R. E. | JSC | Hoffer, R. M. | NAS 9-13380 | 2119 |
| 39 | PURDUE UNIVERSITY | Potter, A. E. | JSC | Landgrebe, D. A. | NAS 9-14016 | 2120 |
| 39 | PURDUE UNIVERSITY | Grandfield, A. L. | JSC | Landgrebe, D. A. | NAS 9-14970 | 2121 |

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| 39 | PURDUE UNIVERSITY | Maurer, H. E. | WFC | Phillips, T. L. | NAS 6-2613 | 2117 |
| 39 | PURDUE UNIVERSITY | Maurer, H. E. | WFC | Phillips, T. L. | NAS 6-2695 | 2118 |
| 39 | PURDUE UNIVERSITY | Vitale, J. A. | HQ-P | Weismiller, R. A. | NGL 15-005-186 | 2125 |
| 39 | SAVANNAH STATE COL | Perkins, E. E. | KSC | Ghuman, G. S. | NSG 803 | 2011 |
| 39 | SO DAKOTA STATE UNIV | Vitale, J. A. | HQ-P | Myers, V. I. | NGL 42-003-007 | 3316 |
| 39 | STATE UNIV NY-ALBANY | Baraona, C. R. | LERC | Corbett, J. W. | NSG 3095 | 2992 |
| 39 | STATE UNIV NY-ALBANY | Weinberg, J. L. | MSFC | Schuerman, D. W. | NAS 8-31902 | 2990 |
| 39 | STATE U NY-STONY BRK | Williams, T. S., Jr. | LARC | Owens, T. | NAS 1-10493 | 3004 |
| 39 | STATE U NY-STONY BRK | Gordon, S. | LERC | Berlad, A. L. | NGR 33-015-163 | 3013 |
| 39 | TEXAS A&M UNIVERSITY | Gordon, F. | GSFC | Harwood, P. | NAS 5-22534 | 3406 |
| 39 | TEXAS A&M UNIVERSITY | Schmugge, T. | GSFC | Blanchard, B. J. | NAS 5-23458 | 3409 |
| 39 | TEXAS A&M UNIVERSITY | Buras, N. T. | JSC | Rouse, J. W., Jr. | NAS 9-13904 | 3419 |
| 39 | TEXAS A&M UNIVERSITY | Potter, A. E. | JSC | Rouse, J. L. | NAS 9-14197 | 3420 |
| 39 | TEXAS A&M UNIVERSITY | Barnett, T. L. | JSC | Harlan, C. | NAS 9-14470 | 3421 |
| 39 | TEXAS A&M UNIVERSITY | Blanchard, D. | JSC | Randall, J. D. | NAS 9-14828 | 3428 |
| 39 | TEXAS A&M UNIVERSITY | Mason, C. C. | JSC | Blanchard, B. J. | NAS 9-14898 | 3430 |
| 39 | TEXAS A&M UNIVERSITY | Vitale, J. A. | HQ-P | Rouse, J. W., Jr. | NGL 44-001-001 | 3433 |
| 39 | UNIV ALA-HUNTSVILLE | Gravette, M. C. | MSFC | Schroer, B. J. | NAS 8-30885 | 1053 |
| 39 | UNIV ALA-HUNTSVILLE | West, G. S., Jr. | MSFC | Hung, R. J. | NAS 8-31171 | 1056 |
| 39 | UNIV ALASKA-FAIRBNKS | Oseroff, H. | GSFC | Lent, P. | NAS 5-20915 | 1084 |
| 39 | UNIV ALASKA-FAIRBNKS | Vitale, J. A. | HQ-P | Miller, J. M. | NGL 02-001-092 | 1089 |
| 39 | UNIV OF ARIZONA | Vitale, J. A. | HQ-P | Johnson, J. D. | NGL 03-002-313 | 1136 |
| 39 | UNIV ARKANSAS-FAYETV | Szajna, E. F. | GSFC | MacDonald, H. | NAS 5-20810 | 1174 |
| 39 | UNIV CALIF-BERKELEY | Wrigley, R. C. | ARC | Horne, A. J. | NSG 2003 | 1493 |
| 39 | UNIV CALIF-BERKELEY | Wood, R. D. | ARC | Laporte, T. | NSG 2160 | 1502 |
| 39 | UNIV CALIF-BERKELEY | Forbes, C. D. | JSC | Colwell, R. N. | NAS 9-14419 | 1450 |
| 39 | UNIV CALIF-BERKELEY | Patteson, A. W. | JSC | Lauer, D. | NAS 9-14452 | 1451 |
| 39 | UNIV CALIF-BERKELEY | Garcia, J. G. | JSC | Colwell, R. N. | NAS 9-14565 | 1452 |
| 39 | UNIV CALIF-BERKELEY | Vitale, J. A. | HQ-P | Colewell, R. N. | NGL 05-003-404 | 1471 |
| 39 | UNIV CALIF-BERKELEY | Vitale, J. A. | HQ-P | Colwell, R. N. | NSG 7220 | 1510 |
| 39 | UNIV CALIF-BERKELEY | Williams, R. J. | HQ-SL | Anderson, K. A. | NSG 7127 | 1506 |
| 39 | UNIV CALIF-DAVIS | Salomonson, V. V. | GSFC | Algazi, V. R. | NSG 5092 | 1528 |
| 39 | UNIV CALIF-L ANGELES | Cauffman, D. P. | HQ-ST | Coleman, P. J., Jr. | NGL 05-007-004 | 1555 |
| 39 | UNIV CALIF-L ANGELES | Cauffman, D. P. | HQ-ST | Siscoe, G. L. | NSG 7180 | 1590 |
| 39 | UNIV CALIF-SAN DIEGO | Carpenter, L. | GSFC | Berger, J. | NGR 05-009-246 | 1630 |
| 39 | UNIV CALIF-S CRUZ | Harris, J. W. | JSC | Papike, J. J. | NSG 9034 | 1663 |
| 39 | UNIV COLORADO-BOLDR | Fichtl, G. H. | MSFC | Toomre, J. | NAS 8-31958 | 1771 |
| 39 | UNIV COLORADO-BOLDR | Vitale, J. A. | HQ-P | Ives, J. D. | NGL 06-003-200 | 1776 |
| 39 | UNIV OF CONNECTICUT | Schweickart, R. L. | HQ-EK | Baldwin, R. C., Jr. | W-14061 | 1822 |
| 39 | UNIV OF DAYTON | Stevenson, S. M. | LERC | Martino, J. | NAS 3-20365 | 3148 |
| 39 | UNIV OF DELAWARE | Johnson, R. W. | LARC | Klemas, V. | NAS 1-12304 | 1830 |
| 39 | UNIV OF DELAWARE | Collins, V. G. | LARC | Klemas, V. | NSG 1149 | 1832 |
| 39 | UNIV OF FLORIDA | Toft, P. D. | KSC | Bartholic, J. F. | NAS10-8774 | 1918 |
| 39 | UNIV OF FLORIDA | Toft, P. D. | KSC | Bartholic, J. F. | NAS10-8920 | 1919 |
| 39 | UNIV OF FLORIDA | Vitale, J. A. | HQ-P | Brooks, H. K. | NSG 7236 | 1933 |
| 39 | UNIV HOUSTON-HOUSTON | Williams, T. S., Jr. | LARC | Oro, J. | NAS 1-9685 | 3444 |
| 39 | UNIV OF KANSAS | Shiue, J. C. | GSFC | Moore, R. K. | NAS 5-22384 | 2190 |
| 39 | UNIV OF KANSAS | Hatcher, N. M. | JSC | Ulaby, F. T. | NAS 9-10261 | 2191 |
| 39 | UNIV OF KANSAS | Buras, N. T. | JSC | Ulaby, F. T. | NAS 9-14052 | 2192 |
| 39 | UNIV OF KANSAS | Patteson, A. W. | JSC | Haralick, R. M. | NAS 9-14453 | 2193 |
| 39 | UNIV OF KANSAS | Vitale, J. A. | HQ-P | Barr, B. G. | NGL 17-004-024 | 2194 |
| 39 | UNIV OF KENTUCKY | Palupan, C. T. | MSFC | Graves, D. H. | NAS 8-31006 | 2225 |
| 39 | UNIV MARYLAND-COL PK | Trombka, J. I. | GSFC | Sommer, S. E. | NAS 5-23457 | 2307 |
| 39 | UNIV MARYLAND-COL PK | Hoell, J. M. | LARC | Davis, D. D. | NSG 1075 | 2344 |
| 39 | UNIV MARYLAND-COL PK | Alfonsi, P. J. | WFC | Harmon, D. M. | NSG 6001 | 2361 |
| 39 | UNIV OF MASS-AMHERST | Szajna, E. F. | GSFC | Smith, H. P. | NAS 5-21871 | 2535 |
| 39 | UNIV OF MIAMI | Bland, R. A. | KSC | Hirschberg, J. G. | NAS10-8600 | 1937 |
| 39 | UNIV OF MIAMI | Bland, R. A. | KSC | Veziroglu, T. N. | NAS10-8740 | 1938 |

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| 39 | UNIV OF MIAMI | Bland, R. A. | KSC | Hirschberg, J. G. | NAS10-8795 | 1939 |
| 39 | UNIV OF MIAMI | Bland, R. A. | KSC | Lee, S. S. | NAS10-8926 | 1940 |
| 39 | UNIV OF MIAMI | Bland, R. A. | KSC | Hirschberg, J. G. | NAS10-8954 | 1941 |
| 39 | U MINN-MNPLS-ST PAUL | Vitale, J. A. | HQ-P | Shepherd, W. G. | NGL 24-005-263 | 2631 |
| 39 | U MINN-MNPLS-ST PAUL | Cauffman, D. P. | HQ-ST | Winckler, J. R. | NSG 7005 | 2645 |
| 39 | UNIV MO-COLUMBIA | Paludan, C. T. | MSFC | Barr, P. J. | NAS 8-31767 | 2691 |
| 39 | UNIV OF MONTANA | Sebesta, P. D. | ARC | Craighead, J. J. | NSG 2030 | 2720 |
| 39 | UNIV NEBRASKA-LINCLN | Vitale, J. A. | HQ-P | Carlson, M. P. | NGL 28-004-020 | 2725 |
| 39 | UNIV SO MISSISSIPPI | Vitale, J. A. | HQ-P | Pinson, J. W. | NGL 25-005-007 | 2681 |
| 39 | UNIV TENNESSEE-KNOXV | Escue, W. T. | MSFC | Rehder, J. B. | NAS 8-31143 | 3334 |
| 39 | UNIV TENNESSEE-KNOXV | Paludan, C. T. | MSFC | Shahroki, F. | NAS 8-31980 | 3336 |
| 39 | UNIV OF UTAH | Lawton, B. W. | LARC | Shepherd, K. P. | NSG 1272 | 3569 |
| 39 | UNIV OF UTAH | Tuttle, F. B. | HQ-FE | Ridd, M. K. | NASW 2648 | 3563 |
| 39 | UNIV OF UTAH | Vitale, J. A. | HQ-P | Ridd, M. K. | NSG 7226 | 3571 |
| 39 | UNIV OF VIRGINIA | Crump, E. W. | GSFC | Dolan, R. | NAS 5-20999 | 3664 |
| 39 | UNIV WISC-MADISON | Vitale, J. A. | HQ-P | Clapp, J. L. | NGL 50-002-127 | 3791 |
| 39 | VIRGINIA POLY INST | Scott, J. H. | WFC | Petry, D. E. | NAS 6-2388 | 3695 |
| 39 | WASHINGTON UNIVERSITY | Williams, T. S., Jr. | LARC | Arvidson, R. E. | NAS 1-13889 | 2705 |
| 41 | ARIZONA STATE UNIV | Gaunter, J. W. | LERC | Metzger, D. E. | NSG 3075 | 1096 |
| 41 | AUBURN UNIV-AUBURN | Duncan, J. R., Jr. | MSFC | Bennett, A. G. | NAS 8-30248 | 1020 |
| 41 | BOSTON UNIVERSITY | Yates, E. C., Jr. | LARC | Morino, L. | NGR 22-004-030 | 2375 |
| 41 | CALIF INST OF TECH | Olson, L. E. | ARC | Coles, D. E. | NGL 05-002-229 | 1212 |
| 41 | CALIF INST OF TECH | Davis, R. C. | LARC | Babcock, C. D., Jr. | NSG 1005 | 1232 |
| 41 | CALIF INST OF TECH | Sandercok, D. M. | LERC | Rannie, W. D. | NGL 05-002-136 | 1206 |
| 41 | CAL STATE U-CHICO | Zill, L. P. | ARC | Huntsinger, R. | NCA 2-110502 | 1251 |
| 41 | CAL STATE U-CHICO | Zill, L. P. | ARC | Sours, C. F. | NCA 2-110504 | 1252 |
| 41 | CAL STATE U-LG BEACH | Carr, L. W. | ARC | Cebeci, T. | NAS 1-13656 | 1262 |
| 41 | CAL STATE U-LG BEACH | Young, W. H., Jr. | LARC | Cebeci, T. | NAS 1-14276 | 1263 |
| 41 | CASE WESTERN RESERVE | Bishop, A. R. | LERC | Reshotko, E. | NGR 36-027-064 | 3086 |
| 41 | CASE WESTERN RESERVE | Bober, L. J. | LERC | Reshotko, E. | NSG 3058 | 3093 |
| 41 | CASE WESTERN RESERVE | Sockol, P. M. | LERC | Reshotko, E. | NSG 3062 | 3094 |
| 41 | CASE WESTERN RESERVE | Anderson, B. H. | LERC | Lynch, W. C. | NSG 3115 | 3099 |
| 41 | CATHOLIC UNIVERSITY | Deissler, R. G. | LERC | Ling, S. C. | NGR 09-005-099 | 1839 |
| 41 | CHRISTPHR NEWPRT COL | Morris, G. J. | LARC | Roby, A. B. | NAS 1-13423 | 3580 |
| 41 | CHRISTPHR NEWPRT COL | Jewel, J. W., Jr. | LARC | Unavailable | NAS 1-13913 | 3581 |
| 41 | CHRISTPHR NEWPRT COL | Morris, G. J. | LARC | Roby, A. B. | NAS 1-14034 | 3582 |
| 41 | CITY COLLEGE OF N Y | Montgomery, R. C. | LARC | Mekel, R. | NSG 1169 | 2854 |
| 41 | CLEMSON UNIV-CLEMSON | Abel, I. | LARC | Rudisill, C. S. | NSG 1125 | 3306 |
| 41 | COLORADO STATE UNIV | Zill, L. P. | ARC | Sandborn, V. A. | NCA 2-165502 | 1734 |
| 41 | COLORADO STATE UNIV | Thekaekara, M. P. | GSFC | Vonder Haar, T. H. | NAS 5-22372 | 1723 |
| 41 | COLUMBIA UNIVERSITY | Mixson, J. S. | LARC | Vaicaitis, R. | NSG 1059 | 2885 |
| 41 | CORNELL UNIVERSITY | Marek, C. J. | LERC | Gouldin, F. C. | NSG 3019 | 2928 |
| 41 | CORNELL UNIVERSITY | Chamis, C. C. | LERC | Moon, F. C. | NSG 3080 | 2929 |
| 41 | GEORGE WASHINGTON U | Margolis, K. | LARC | Liebowitz, H. | NGR 09-010-064 | 1859 |
| 41 | GEORGE WASHINGTON U | Mulac, R. W. | LARC | Liebowitz, H. | NGR 09-010-074 | 1860 |
| 41 | GEORGE WASHINGTON U | Anderson, R. A. | LARC | Liebowitz, H. | NGR 09-010-078 | 1861 |
| 41 | GEORGE WASHINGTON U | Margolis, K. | LARC | Liebowitz, H. | NGR 09-010-085 | 1862 |
| 41 | GEORGE WASHINGTON U | Suit, W. T. | LARC | Liebowitz, H. | NSG 1161 | 1867 |
| 41 | GEORGE WASHINGTON U | McKinney, L. W. | LARC | Liebowitz, H. | NSG 1246 | 1871 |
| 41 | GEORGIA INST OF TECH | Petersen, J. P. | LARC | Horton, W. H. | NGL 11-002-096 | 1981 |
| 41 | GEORGIA INST OF TECH | Eggers, J. M. | LARC | Bangert, L. H. | NGR 11-002-177 | 1984 |
| 41 | GEORGIA INST OF TECH | Weston, R. P. | LARC | McMahon, H. M. | NSG 1257 | 1987 |
| 41 | GEORGIA INST OF TECH | Feiler, C. E. | LERC | Zinn, B. T. | NSG 3036 | 1992 |
| 41 | HAMPTON INSTITUTE | Jewel, J. W., Jr. | LARC | Williams, G. K. | NAS 1-12445 | 3592 |
| 41 | HAMPTON INSTITUTE | Jewel, J. W., Jr. | LARC | Williams, G. K. | NAS 1-14507 | 3593 |
| 41 | HARVEY MUDD COLLEGE | Orloff, K. | ARC | Woodson, T. T. | NAS 2-8925 | 1269 |
| 41 | HOWARD UNIVERSITY | Martz, C. W. | LARC | Bainum, P. M. | NSG 1181 | 1887 |
| 41 | ILL INST OF TECH | Beckwith, I. E. | LARC | Nagib, H. M. | NSG 1120 | 2035 |

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|---------------|---------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 41 | ILL INST OF TECH | Starnes, J. H., Jr. | LARC | Haftka, R. T. | NSG 1266 | 2036 |
| 41 | IOWA STATE UNIV | Zill, L. P. | ARC | Cook, W. J. | NCA 2-340406 | 2150 |
| 41 | IOWA STATE UNIV | Zill, L. P. | ARC | Anderson, D. A. | NCA 2-340503 | 2153 |
| 41 | IOWA STATE UNIV | Zill, L. P. | ARC | Anderson, D. A. | NCA 2-340505 | 2155 |
| 41 | IOWA STATE UNIV | Zill, L. P. | ARC | Cook, W. J. | NCA 2-340506 | 2156 |
| 41 | IOWA STATE UNIV | Rakich, J. V. | ARC | Tannehill, J. C. | NGR 16-002-038 | 2161 |
| 41 | IOWA STATE UNIV | Rossow, V. J. | ARC | Iversen, J. D. | NSG 2040 | 2162 |
| 41 | IOWA STATE UNIV | Chapman, G. T. | ARC | James, W. D. | NSG 2091 | 2163 |
| 41 | IOWA STATE UNIV | Chapman, G. T. | ARC | Herget, C. J. | NSG 2150 | 2164 |
| 41 | IOWA STATE UNIV | Presley, L. L. | ARC | Cook, W. J. | NSG 2152 | 2165 |
| 41 | IOWA STATE UNIV | Sokol, P. M. | LERC | Serovy, G. K. | NSG 3033 | 2166 |
| 41 | ISRAEL INST OF TECH | Dixon, S. C. | LARC | Haftka, R. T. | NGR 52-012-008 | 3820 |
| 41 | ISRAEL INST OF TECH | Abel, I. | LARC | Nissim, E. | NSG 7072 | 3821 |
| 41 | ISRAEL INST OF TECH | Bush, H. G. | LARC | Weller, T. | NSG 7083 | 3822 |
| 41 | LEHIGH UNIVERSITY | Deets, D. A. | DFRC | Johnson, S. H. | NSG 4005 | 3223 |
| 41 | LEHIGH UNIVERSITY | Deets, D. A. | DFRC | Johnson, S. H. | NSG 4010 | 3224 |
| 41 | MASS INST OF TECH | Rabbott, J. P., Jr. | ARC | Ham, N. D. | NAS 2-7262 | 2417 |
| 41 | MASS INST OF TECH | Rabbott, J. P., Jr. | ARC | Faulkner, H. B. | NAS 2-7620 | 2418 |
| 41 | MASS INST OF TECH | Wempe, T. E. | ARC | Curry, R. E. | NGR 22-009-733 | 2476 |
| 41 | MASS INST OF TECH | Rabbott, J. P., Jr. | ARC | Harris, W. L. | NSG 2095 | 2501 |
| 41 | MASS INST OF TECH | Williams, L. J. | ARC | Taneja, N. K. | NSG 2129 | 2503 |
| 41 | MASS INST OF TECH | Rabbott, J. P., Jr. | ARC | Widnall, S. E. | NSG 2142 | 2504 |
| 41 | MASS INST OF TECH | Szalai, K. J. | DFRC | Whitaker, H. D. | NGL 22-009-548 | 2454 |
| 41 | MASS INST OF TECH | Gloersen, P. | GSFC | Staelin, D. H. | NAS 5-22929 | 2429 |
| 41 | MASS INST OF TECH | Reid, H. J., Jr. | LARC | Simpson, R. W. | NGL 22-009-640 | 2456 |
| 41 | MASS INST OF TECH | Queijo, M. J. | LARC | Young, L. R. | NGR 22-009-701 | 2471 |
| 41 | MASS INST OF TECH | Rhodes, M. D. | LARC | Mar, J. W. | NGR 22-009-781 | 2481 |
| 41 | MASS INST OF TECH | Hoad, D. R. | LARC | Widnall, S. E. | NGR 22-009-818 | 2487 |
| 41 | MASS INST OF TECH | Gera, J. | LARC | Athans, M. | NSG 1018 | 2490 |
| 41 | MASS INST OF TECH | Montgomery, R. C. | LARC | Willsky, A. S. | NSG 1112 | 2492 |
| 41 | MASS INST OF TECH | Bland, S. R. | LARC | Harris, W. L. | NSG 1219 | 2495 |
| 41 | MASS INST OF TECH | Boyden, R. P. | LARC | Covert, E. E. | NSG 1292 | 2496 |
| 41 | MASS INST OF TECH | McNally, W. D. | LERC | Kerrebrock, J. L. | NGL 22-009-383 | 2452 |
| 41 | MASS INST OF TECH | Siewert, R. D. | LERC | Witmer, E. A. | NGR 22-009-339 | 2460 |
| 41 | MASS INST OF TECH | Baumeister, K. J. | LERC | Ingard, K. U. | NGR 22-009-805 | 2486 |
| 41 | MASS INST OF TECH | Norgren, C. T. | LERC | Keck, J. C. | NSG 3076 | 2510 |
| 41 | MASS INST OF TECH | Adamczyk, J. J. | LERC | Kerrebrock, J. L. | NSG 3079 | 2511 |
| 41 | MASS INST OF TECH | McNally, W. D. | LERC | Kerrebrock, J. L. | NSG 3093 | 2513 |
| 41 | MICHIGAN STATE UNIV | Hardin, J. C. | LARC | Foss, J. F. | NGR 23-004-091 | 2545 |
| 41 | MICHIGAN STATE UNIV | Hefner, J. N. | LARC | Foss, J. F. | NSG 1138 | 2546 |
| 41 | MISSISSIPPI STATE U | Bobbitt, P. J. | LARC | Thompson, J. F. | NGR 25-001-055 | 2671 |
| 41 | MISSISSIPPI STATE U | Hall, A. W. | LARC | Cross, E. J., Jr. | NSG 1083 | 2672 |
| 41 | MISSISSIPPI STATE U | Hall, A. W. | LARC | Cross, E. J., Jr. | NSG 1231 | 2673 |
| 41 | MISSISSIPPI STATE U | Harris, R. L. | LARC | Bennett, A. G., Jr. | NSG 1249 | 2675 |
| 41 | MISSISSIPPI STATE U | Gera, J. | LARC | Bennett, A. G. | NSG 1284 | 2676 |
| 41 | MISSISSIPPI STATE U | Guynes, B. U. | MSFC | Mitchell, G. | NAS 8-31568 | 2663 |
| 41 | MISSISSIPPI STATE U | Clever, W. W. | MSFC | Shepard, W. S. | NAS 8-31770 | 2664 |
| 41 | NEW MEX ST U-LAS CR | Monroe, R. | HQ-U | Alba, A. | NASW 2928 | 2806 |
| 41 | NEW YORK UNIVERSITY | Hicks, R. M. | ARC | Garabedian, P. R. | NGR 33-016-201 | 2948 |
| 41 | NEW YORK UNIVERSITY | Fetterman, D. E. | LARC | Ferri, A. | NGL 33-016-119 | 2943 |
| 41 | NEW YORK UNIVERSITY | Huber, P. W. | LARC | Zakkay, V. | NGR 33-016-131 | 2944 |
| 41 | NEW YORK UNIVERSITY | Liu, C. H. | LARC | Ting, L. | NSG 1291 | 2949 |
| 41 | NEW YORK UNIVERSITY | Stallings, R. L. | LARC | Zakkay, V. | NSG 1303 | 2951 |
| 41 | NO CAROLINA STATE U | Crane, H. L. | LARC | Smetana, F. O. | NSG 1077 | 3065 |
| 41 | NO CAROLINA STATE U | Walberg, G. D. | LARC | Dejarnette, F. R. | NSG 1287 | 3071 |
| 41 | NORTHWESTERN UNIV | Williams, L. J. | ARC | Spencer, F. A. | NSG 2149 | 2047 |
| 41 | OHIO STATE UNIV | Barnwell, R. W. | LARC | Gregorek, G. M. | NAS 1-14406 | 3109 |
| 41 | OHIO STATE UNIV | Hall, A. W. | LARC | Gregorek, G. M. | NSG 1184 | 3127 |

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| 41 | OLD DOMINION UNIV | Gentry, G. L., Jr. | LARC | Ousterhout, D. S. | NGL 47-003-039 | 3610 |
| 41 | OLD DOMINION UNIV | Anderson, A. F. | LARC | Roberts, A. S., Jr. | NGR 47-003-052 | 3614 |
| 41 | OLD DOMINION UNIV | Hefner, J. N. | LARC | Goglia, G. L. | NSG 1087 | 3627 |
| 41 | OLD DOMINION UNIV | Harris, J. E. | LARC | Cooke, C. H. | NSG 1098 | 3628 |
| 41 | OLD DOMINION UNIV | Hefner, J. N. | LARC | Ash, R. L. | NSG 1100 | 3629 |
| 41 | OLD DOMINION UNIV | McKinney, L. W. | LARC | Goglia, G. L. | NSG 1135 | 3633 |
| 41 | OLD DOMINION UNIV | Kershner, D. D. | LARC | Barna, P. S. | NSG 1143 | 3634 |
| 41 | OLD DOMINION UNIV | Davis, J. G., Jr. | LARC | Hyer, M. W. | NSG 1167 | 3637 |
| 41 | OLD DOMINION UNIV | Harris, J. E. | LARC | Goglia, G. L. | NSG 1226 | 3643 |
| 41 | OLD DOMINION UNIV | Adelman, H. M. | LARC | Thornton, E. A. | NSG 1237 | 3645 |
| 41 | OLD DOMINION UNIV | Adelman, H. M. | LARC | Goglia, G. L. | NSG 1260 | 3651 |
| 41 | OLD DOMINION UNIV | Coe, P. L., Jr. | LARC | Goglia, G. L. | NSG 1309 | 3655 |
| 41 | OLD DOMINION UNIV | Bobbitt, P. J. | LARC | Goglia, G. L. | NSG 1311 | 3656 |
| 41 | OLD DOMINION UNIV | Peterson, J. B., Jr. | LARC | Goglia, G. L. | NSG 1315 | 3657 |
| 41 | OLD DOMINION UNIV | Hunt, L. R. | LARC | Keshock, E. G. | NSG 1318 | 3658 |
| 41 | PENN STATE U-UNIV PK | Heyson, H. H. | LARC | Eisenhuth, J. J. | NGL 39-009-172 | 3241 |
| 41 | PENN STATE U-UNIV PK | Fisher, B. D. | LARC | McCormick, B. W. | NSG 1308 | 3251 |
| 41 | PENN STATE U-UNIV PK | Heidmann, M. F. | LERC | Lakshminarayana, B. | NAS 3-17855 | 3227 |
| 41 | PENN STATE U-UNIV PK | Britsch, W. R. | LERC | Holl, J. W. | NGL 39-009-001 | 3235 |
| 41 | PENN STATE U-UNIV PK | Britsch, W. R. | LERC | Lakshminarayana, B. | NGL 39-009-007 | 3238 |
| 41 | PENN STATE U-UNIV PK | Stone, J. R. | LERC | Arndt, R. E. | NGR 39-009-270 | 3246 |
| 41 | PENN STATE U-UNIV PK | Heidmann, M. F. | LERC | Lakshminarayana, B. | NSG 3012 | 3253 |
| 41 | PENN STATE U-UNIV PK | Sanger, N. L. | LERC | Henderson, R. E. | NSG 3031 | 3255 |
| 41 | PENN STATE U-UNIV PK | Sockol, P. M. | LERC | Lakshminarayana, B. | NSG 3032 | 3256 |
| 41 | POLY INST OF NY | Rudy, D. H. | LARC | Rubin, S. G. | NSG 1244 | 2964 |
| 41 | POLY INST OF NY | Salas, M. D. | LARC | Moretti, G. | NSG 1248 | 2965 |
| 41 | POLY INST OF NY | Morgan, H. L., Jr. | LARC | Krenkel, A. R. | NSG 1300 | 2966 |
| 41 | PRINCETON UNIVERSITY | Franklin, J. A. | ARC | Seckel, E. | NAS 2-7350 | 2752 |
| 41 | PRINCETON UNIVERSITY | Gaspers, P. A., Jr. | ARC | Dowell, E. H. | NGR 31-001-197 | 2769 |
| 41 | PRINCETON UNIVERSITY | Smith, G. A. | ARC | Dukes, T. A. | NGR 31-001-277 | 2773 |
| 41 | PRINCETON UNIVERSITY | Horstman, C. C. | ARC | Bogdonoff, S. M. | NSG 2114 | 2785 |
| 41 | PRINCETON UNIVERSITY | Miller, G. K., Jr. | LARC | Sockel, E. | NAS 1-13502 | 2751 |
| 41 | PRINCETON UNIVERSITY | Mixson, J. S. | LARC | Dowell, E. H. | NGL 31-001-146 | 2764 |
| 41 | PRINCETON UNIVERSITY | Reid, H. J., Jr. | LARC | Graham, D. | NGL 31-001-252 | 2765 |
| 41 | PRINCETON UNIVERSITY | Crane, H. L. | LARC | Seckel, E. | NSG 1078 | 2779 |
| 41 | PRINCETON UNIVERSITY | Crane, H. L. | LARC | Seckel, E. | NSG 1234 | 2781 |
| 41 | PRINCETON UNIVERSITY | Mixson, J. S. | LARC | Dowell, E. H. | NSG 1253 | 2782 |
| 41 | PRINCETON UNIVERSITY | Chamis, C. C. | LERC | Dowell, E. H. | NGR 31-001-267 | 2772 |
| 41 | PRINCETON UNIVERSITY | Stone, J. R. | LERC | Plett, E. G. | NGR 31-001-307 | 2775 |
| 41 | PURDUE UNIVERSITY | Zill, L. P. | ARC | Smith, C. R. | NCA 2-605501 | 2122 |
| 41 | PURDUE UNIVERSITY | Tobak, M. | ARC | Abbott, D. E. | NSG 2135 | 2134 |
| 41 | PURDUE UNIVERSITY | Williams, L. J. | ARC | Drake, J. W. | NSG 2158 | 2135 |
| 41 | PURDUE UNIVERSITY | Berry, D. T. | DFRC | Swaim, R. L. | NSG 4003 | 2139 |
| 41 | PURDUE UNIVERSITY | Landrum, E. J. | LARC | Marshall, F. J. | NGR 15-005-119 | 2126 |
| 41 | PURDUE UNIVERSITY | Pao, S. P. | LARC | Kentzer, C. P. | NSG 1293 | 2133 |
| 41 | PURDUE UNIVERSITY | Minner, G. L. | LERC | Vaidya, P. G. | NAS 3-18010 | 2113 |
| 41 | PURDUE UNIVERSITY | Davison, H. W. | LERC | Lecuyer, M. R. | NGR 15-005-147 | 2127 |
| 41 | PURDUE UNIVERSITY | Bishop, A. R. | LERC | Hoffman, J. D. | NGR 15-005-162 | 2129 |
| 41 | PURDUE UNIVERSITY | Bishop, A. R. | LERC | Hoffman, J. D. | NGR 15-005-191 | 2131 |
| 41 | PURDUE UNIVERSITY | Davidson, H. W. | LERC | L'ecuyer, M. R. | NSG 3071 | 2137 |
| 41 | PURDUE UNIVERSITY | Katsanis, T. | LERC | Thompson, H. D. | NSG 3105 | 2138 |
| 41 | RENSSELAER POLY-NY | Hood, R. V. | LARC | Kaufman, H. | NSG 1188 | 2982 |
| 41 | RENSSELAER POLY-NY | Bill, R. C. | LERC | Ling, F. F. | NGR 33-018-152 | 2979 |
| 41 | ROSE-HULMAN INST TEC | Margason, R. J. | LARC | Roper, A. T. | NSG 1258 | 2142 |
| 41 | ST LOUIS UNIVERSITY | Sobieszczanski, J. | LARC | Long, C. A. | NGL 26-006-021 | 2684 |
| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Leclair, R. | NCA 2-675406 | 1291 |
| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Neptune, J. | NCA 2-675410 | 1293 |
| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Sharfstein, H. | NCA 2-675411 | 1294 |

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| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Tucker, A. B. | NCA 2-675413 | 1295 |
| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Myronuk, D. J. | NCA 2-675505 | 1297 |
| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Leonard, T. E. | NCA 2-675513 | 1302 |
| 41 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Miller, A. | NCA 2-675520 | 1306 |
| 41 | SAN JOSE STATE UNIV | Gaspers, P. A., Jr. | ARC | Leonard, T. E. | NCA 2-675606 | 1312 |
| 41 | STANFORD UNIVERSITY | Denery, D. G. | ARC | Debra, D. B. | NAS 2-9083 | 1338 |
| 41 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Karamcheti, K. | NCA 2-745512 | 1360 |
| 41 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Karamcheti, K. | NCA 2-745605 | 1374 |
| 41 | STANFORD UNIVERSITY | Presley, L. L. | ARC | Kline, S. J. | NCA 2-745610 | 1377 |
| 41 | STANFORD UNIVERSITY | Hruby, R. J. | ARC | Bredt, T. A. | NGR 05-020-699 | 1413 |
| 41 | STANFORD UNIVERSITY | Franklin, J. A. | ARC | Debra, D. B. | NSG 2100 | 1428 |
| 41 | STANFORD UNIVERSITY | Kordes, E. E. | DFRC | McIntosh, S. C., Jr. | NGL 05-020-498 | 1391 |
| 41 | STANFORD UNIVERSITY | Deets, D. A. | DFRC | Bryson, A. E. | NSG 4002 | 1434 |
| 41 | STANFORD UNIVERSITY | Doggett, R. V., Jr. | LARC | Ashley, H. | NGL 05-020-243 | 1387 |
| 41 | STANFORD UNIVERSITY | Reed, W. H., III | LARC | Herrmann, G. | NGL 05-020-397 | 1390 |
| 41 | STANFORD UNIVERSITY | Colladay, R. S. | LERC | Kays, W. M. | NAS 3-14336 | 1339 |
| 41 | TEXAS A&M UNIVERSITY | Malcolm, G. N. | ARC | MacHa, J. M. | NSG 2123 | 3438 |
| 41 | TEXAS A&M UNIVERSITY | Hillje, E. R. | JSC | Cavin, R. K., III | NAS 9-14478 | 3422 |
| 41 | TEXAS A&M UNIVERSITY | South, J. C., Jr. | LARC | Carlson, L. A. | NSG 1174 | 3437 |
| 41 | TUFTS UNIVERSITY | Zill, L. P. | ARC | Kreifeldt, J. G. | NCA 2-785401 | 2528 |
| 41 | TUFTS UNIVERSITY | Zill, L. P. | ARC | Kreifeldt, J. G. | NCA 2-785501 | 2529 |
| 41 | TUFTS UNIVERSITY | Zill, L. P. | ARC | Cole, J. E., III | NCA 2-785601 | 2530 |
| 41 | TULANE UNIVERSITY | Priem, R. J. | LERC | O'Hara, J. C. | NGR 19-002-030 | 2262 |
| 41 | UNIV OF ARIZONA | Ballhaus, W. F. | ARC | Seebass, A. R. | NSG 2112 | 1151 |
| 41 | UNIV ARKANSAS-FAYETV | Ahtye, W. F. | ARC | Testerman, M. K. | NGL 04-001-007 | 1178 |
| 41 | UNIV ARKANSAS-LTL RK | Zill, L. P. | ARC | Testerman, M. K. | NCA 2-45501 | 1180 |
| 41 | UNIV ARKANSAS-LTL RK | Johnson, D. A. | ARC | Testerman, M. K. | NCA 2-45601 | 1181 |
| 41 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Postman, L. J. | NCA 2-50503 | 1457 |
| 41 | UNIV CALIF-BERKELEY | Chapman, G. T. | ARC | Holt, M. | NGR 05-003-451 | 1480 |
| 41 | UNIV CALIF-BERKELEY | Ciffone, D. L. | ARC | Wehausen, J. V. | NSG 2110 | 1497 |
| 41 | UNIV CALIF-BERKELEY | Waters, M. H. | ARC | Horonjeff, R. | NSG 2127 | 1499 |
| 41 | UNIV CALIF-BERKELEY | Waters, M. H. | ARC | Horonjeff, R. | NSG 2133 | 1500 |
| 41 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | White, B. R. | NCA 2-180503 | 1518 |
| 41 | UNIV CALIF-DAVIS | Nelson, D. | GSFC | Coulson, K. L. | NAS 5-22964 | 1513 |
| 41 | UNIV CALIF-L ANGELES | Polentz, P. P. | ARC | Dixon, W. J. | NAS 2-7785 | 1533 |
| 41 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Schmit, L. A. | NCA 2-390405 | 1547 |
| 41 | UNIV CALIF-L ANGELES | Anderson, A. E. | ARC | Meecham, W. C. | NGR 05-007-323 | 1566 |
| 41 | UNIV CALIF-L ANGELES | Carter, A. L. | DFRC | Unavailable | NAS 4-1995 | 1537 |
| 41 | UNIV CALIF-L ANGELES | Rediess, H. A. | DFRC | Balakrishnan, A. V. | NGL 05-007-379 | 1561 |
| 41 | UNIV CALIF-L ANGELES | Stroud, W. J. | LARC | Schmit, L. A. | NGR 05-007-337 | 1569 |
| 41 | UNIV CALIF-L ANGELES | Bland, S. R. | LARC | Cole, J. D. | NGR 05-007-395 | 1572 |
| 41 | UNIV CALIF-L ANGELES | Hammond, C. E. | LARC | Friedmann, P. | NGR 05-007-414 | 1574 |
| 41 | UNIV CALIF-SAN DIEGO | Gessow, A. | LARC | Libby, P. A. | NGR 05-009-178 | 1623 |
| 41 | UNIV OF CINCINNATI | Burke, J. A. | ARC | Tabakoff, W. | NAS 2-7850 | 3135 |
| 41 | UNIV OF CINCINNATI | Suit, W. T. | LARC | Wells, W. R. | NGR 36-004-061 | 3136 |
| 41 | UNIV OF CINCINNATI | Dunavant, J. C. | LARC | Polak, A. | NSG 1208 | 3141 |
| 41 | UNIV OF CINCINNATI | Prust, H. W., Jr. | LERC | Tabakoff, W. | NGR 36-004-064 | 3137 |
| 41 | UNIV OF CINCINNATI | Jones, R. E. | LERC | Kauffman, C. W. | NSG 3045 | 3144 |
| 41 | UNIV OF CINCINNATI | Davison, H. W. | LERC | Tabakoff, W. | NSG 3066 | 3145 |
| 41 | UNIV COLORADO-BOLDR | Davis, S. S. | ARC | Kadlec, R. A. | NSG 2128 | 1793 |
| 41 | UNIV COLORADO-BOLDR | Rainey, R. W. | LARC | Culp, R. D. | NSG 1056 | 1788 |
| 41 | UNIV COLORADO-BOLDR | Deissler, R. G. | LERC | Uberoi, M. S. | NGR 06-003-208 | 1783 |
| 41 | UNIV OF CONNECTICUT | Gregory, T. J. | ARC | White, P. R. | NSG 2155 | 1820 |
| 41 | UNIV OF DAYTON | Camp, D. W. | MSFC | Leurs, J. K. | NAS 8-31294 | 3150 |
| 41 | UNIV OF FLORIDA | Zill, L. P. | ARC | Clarkson, M. H. | NCA 2-240501 | 1920 |
| 41 | UNIV OF FLORIDA | Malcolm, G. N. | ARC | Clarkson, M. H. | NSG 2120 | 1928 |
| 41 | UNIV OF FLORIDA | Margason, R. J. | LARC | Fearn, R. L. | NGL 10-005-127 | 1924 |
| 41 | UNIV HOUSTON-HOUSTON | Zill, L. P. | ARC | Kiehn, R. M. | NCA 2-295502 | 3459 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 41 | UNIV HOUSTON-HOUSTON | Hefner, J. N. | LARC | Hussain, A. K. | NSG 1290 | 3471 |
| 41 | UNIV ILLINOIS-CHICGO | Evans, J. S. | LARC | Chung, P. M. | NSG 1150 | 2075 |
| 41 | UNIV ILLINOIS-URBANA | Morgan, H. L., Jr. | LARC | Ormsbee, A. I. | NGR 14-005-144 | 2077 |
| 41 | UNIV ILLINOIS-URBANA | Stickle, J. W. | LARC | Ormsbee, A. I. | NGR 14-005-194 | 2082 |
| 41 | UNIV ILLINOIS-URBANA | Hefner, J. N. | LARC | Lin, Y. K. | NSG 1233 | 2087 |
| 41 | UNIV ILLINOIS-URBANA | Maestrello, L. | LARC | Lin, Y. K. | NSG 1264 | 2088 |
| 41 | UNIV ILLINOIS-URBANA | Bober, L. J. | LERC | Chow, W. L. | NGL 14-005-140 | 2076 |
| 41 | UNIV ILLINOIS-URBANA | Karchmer, A. M. | LERC | Jones, B. G. | NGR 14-005-149 | 2078 |
| 41 | UNIV ILLINOIS-URBANA | Marek, C. J. | LERC | Strehlow, R. A. | NGR 14-005-193 | 2081 |
| 41 | UNIV OF KANSAS | Galloway, T. L. | ARC | Roskam, J. | NSG 2145 | 2208 |
| 41 | UNIV OF KANSAS | Zill, L. P. | ARC | Roskam, J. | NSG 4007 | 2212 |
| 41 | UNIV OF KANSAS | Gee, S. W. | DFRC | Roskam, J. | NAS 4-2148 | 2187 |
| 41 | UNIV OF KANSAS | Fields, R. A. | DFRC | Lenzen, K. H. | NSG 4006 | 2211 |
| 41 | UNIV OF KANSAS | Jenkins, J. M. | DFRC | Lenzen, K. H. | NSG 4008 | 2213 |
| 41 | UNIV OF KANSAS | Ward, J. F. | LARC | Muirhead, V. U. | NAS 1-12976 | 2186 |
| 41 | UNIV OF KANSAS | Crane, H. L. | LARC | Kohlman, D. L. | NGR 17-002-072 | 2195 |
| 41 | UNIV OF KANSAS | Pride, R. A. | LARC | Lenzen, K. H. | NGR 17-004-027 | 2197 |
| 41 | UNIV OF KANSAS | Lamar, J. E. | LARC | Roskam, J. | NSG 1046 | 2198 |
| 41 | UNIV OF KANSAS | Naumann, E. C. | LARC | Lenzen, K. H. | NSG 1122 | 2199 |
| 41 | UNIV OF KANSAS | Campbell, J. F. | LARC | Lan, C. E. | NSG 1139 | 2200 |
| 41 | UNIV OF KANSAS | Crane, H. L. | LARC | Kohlman, D. L. | NSG 1227 | 2202 |
| 41 | UNIV OF KANSAS | Stephens, D. G. | LARC | Roskam, J. | NSG 1301 | 2205 |
| 41 | UNIV OF KANSAS | Campbell, J. F. | LARC | Lan, C. E. | NSG 1302 | 2206 |
| 41 | UNIVERSITY OF LOWELL | Fralich, R. W. | LARC | McElman, J. A. | NSG 1295 | 2533 |
| 41 | UNIV MARYLAND-COL PK | McComb, H. G., Jr. | LARC | Schaeffer, H. G. | NSG 1193 | 2346 |
| 41 | UNIV MD-EASTRN SHORE | Raine, A. W. | WFC | Nagarajon, N. | NGR 21-119-002 | 2368 |
| 41 | UNIV MICH-ANN ARBOR | Feistel, T. W. | ARC | Kroeger, R. A. | NSG 2018 | 2595 |
| 41 | UNIV MICH-ANN ARBOR | Galloway, T. L. | ARC | Kroeger, R. A. | NSG 2056 | 2596 |
| 41 | UNIV MICH-ANN ARBOR | Anderson, S. B. | ARC | Kroeger, R. A. | NSG 2113 | 2597 |
| 41 | UNIV MICH-ANN ARBOR | McCarty, J. L. | LARC | Clark, S. R. | NGL 23-005-010 | 2575 |
| 41 | UNIV MICH-ANN ARBOR | Czarnecki, K. R. | LARC | Sichel, M. | NGR 23-005-523 | 2582 |
| 41 | UNIV MICH-ANN ARBOR | McCarty, J. L. | LARC | Clark, S. K. | NSG 1080 | 2590 |
| 41 | UNIV MICH-ANN ARBOR | Stough, H. P. | LARC | Kroeger, R. A. | NSG 1229 | 2592 |
| 41 | UNIV MISS-UNIVERSITY | Gutierrez, O. A. | LERC | Shields, F. D. | NAS 3-19431 | 2679 |
| 41 | UNIV MO-ROLLA | Mixson, J. S. | LARC | Koval, L. R. | NSG 1050 | 2703 |
| 41 | UNIV NEVADA-L VEGAS | Davis, S. S. | ARC | Fromme, J. A. | NSG 2140 | 2730 |
| 41 | UNIV OF NOTRE DAME | Feiler, C. E. | LERC | Atassi, H. | NSG 3037 | 2145 |
| 41 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Markle, G. E. | NCA 2-685409 | 1677 |
| 41 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Pefley, R. K. | NCA 2-685505 | 1680 |
| 41 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Raggett, J. | NCA 2-685601 | 1685 |
| 41 | UNIV OF SANTA CLARA | Hruby, R. J. | ARC | Dunn, W. R. | NGR 05-017-031 | 1694 |
| 41 | UNIV OF SANTA CLARA | Buell, D. A. | ARC | Cheng, D. Y. | NGR 05-017-033 | 1695 |
| 41 | UNIV OF SANTA CLARA | Meyer, G. | ARC | Weissenberger, S. | NSG 2106 | 1700 |
| 41 | UNIV OF SOUTHAMPTON | Kilgore, R. A. | LARC | Goodyer, M. J. | NSG 7172 | 3819 |
| 41 | UNIV OF SOUTHERN CAL | Zill, L. P. | ARC | Cheng, H. K. | NCA 2-730501 | 1710 |
| 41 | UNIV OF SOUTHERN CAL | Zill, L. P. | ARC | Cheng, H. K. | NCA 2-730601 | 1711 |
| 41 | UNIV OF SOUTHERN CAL | Seiner, J. M. | LARC | Laufer, J. | NSG 1221 | 1717 |
| 41 | UNIV OF SOUTHERN CAL | Dorsch, R. G. | LERC | Laufer, J. | NAS 3-17857 | 1705 |
| 41 | UNIV OF SOUTHERN CAL | Olsen, W. A. | LERC | Laufer, J. | NSG 3025 | 1718 |
| 41 | UNIV STHN COLORADO | Hruby, R. J. | ARC | Jenkins, R. | NSG 2048 | 1815 |
| 41 | UNIV TENNESSEE-KNOXV | Clark, L. R. | LARC | Lumsdaine, E. | NSG 1081 | 3342 |
| 41 | UNIV TENNESSEE-KNOXV | Hammond, C. E. | LARC | Lumsdaine, E. | NSG 1171 | 3344 |
| 41 | UNIV TENNESSEE-KNOXV | Bland, S. R. | LARC | Kimble, K. R. | NSG 1224 | 3345 |
| 41 | UNIV TENNESSEE-KNOXV | Ditumar, J. H. | LERC | Lumsdaine, E. | NGR 43-001-134 | 3340 |
| 41 | UNIV TENNESSEE-KNOXV | Reshotko, M. | LERC | Maus, J. R. | NGR 43-001-135 | 3341 |
| 41 | UNIV TEXAS-ARLINGTON | Rubesin, M. W. | ARC | Payne, F. R. | NSG 2077 | 3477 |
| 41 | UNIV TEXAS-AUSTIN | Medan, R. T. | ARC | Summa, J. M. | NSG 2101 | 3511 |
| 41 | UNIV TEXAS-AUSTIN | Goodrich, W. D. | JSC | Bertin, J. J. | NAS 9-13680 | 3486 |

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| 41 | UNIV TEXAS-AUSTIN | Hilton, D. A. | LARC | Blackstock, D. T. | NAS 1-14160 | 3478 |
| 41 | UNIV OF TORONTO | Foye, R. L. | LARC | Tennyson, R. C. | NGR 52-026-039 | 3814 |
| 41 | UNIV OF VIRGINIA | Schoonover, W. E., Jr. | LARC | Kuhlthau, A. R. | NGR 47-005-181 | 3671 |
| 41 | UNIV OF VIRGINIA | Lichtenstein, J. H. | LARC | Jacobson, I. R. | NGR 47-005-208 | 3674 |
| 41 | UNIV OF VIRGINIA | Schoenster, J. A. | LARC | Haviland, J. K. | NGR 47-005-219 | 3676 |
| 41 | UNIV OF VIRGINIA | Kilgore, R. A. | LARC | Zapata, R. N. | NSG 1010 | 3677 |
| 41 | UNIV OF VIRGINIA | Leatherwood, J. D. | LARC | Jacobson, I. D. | NSG 1180 | 3681 |
| 41 | UNIV OF WASHINGTON | Zill, L. P. | ARC | Businger, J. A. | NCA 2-850501 | 3741 |
| 41 | UNIV OF WASHINGTON | Rose, W. C. | ARC | Childs, M. E. | NGL 48-002-047 | 3747 |
| 41 | UNIV OF WASHINGTON | Steinle, F. W., Jr. | ARC | Russell, D. A. | NGR 48-002-107 | 3750 |
| 41 | UNIV OF WASHINGTON | Rose, W. C. | ARC | Childs, M. E. | NGR 48-002-141 | 3752 |
| 41 | UNIV OF WASHINGTON | Heyson, H. H. | LARC | Joppa, R. G. | NGL 48-002-010 | 3744 |
| 41 | UNIV OF WASHINGTON | Heyson, H. H. | LARC | Rae, W. H. | NGL 48-002-035 | 3745 |
| 41 | UNIV OF WASHINGTON | Fellows, R. F. | HQ-SL | Hodge, P. W. | NGR 48-002-003 | 3748 |
| 41 | UNIV WISC-MILWAUKEE | Young, W. H., Jr. | LARC | Bratanow, T. | NGR 50-007-001 | 3806 |
| 41 | VA MILITARY INSTITUT | Creedon, J. F. | LARC | Reid, G. F. | NGR 47-018-005 | 3688 |
| 41 | VIRGINIA POLY INST | Gaspers, P. A., Jr. | ARC | Weisshaar, T. A. | NSG 2016 | 3729 |
| 41 | VIRGINIA POLY INST | Anderson, A. F. | LARC | Drew, D. R. | NGR 47-004-090 | 3699 |
| 41 | VIRGINIA POLY INST | Montgomery, R. C. | LARC | Caglayan, A. K. | NGR 47-004-116 | 3702 |
| 41 | VIRGINIA POLY INST | Montgomery, R. C. | LARC | Cliff, E. M. | NSG 1015 | 3705 |
| 41 | VIRGINIA POLY INST | Newman, J. C., Jr. | LARC | Smith, C. W. | NSG 1024 | 3707 |
| 41 | VIRGINIA POLY INST | Davidson, J. R. | LARC | Heller, R. A. | NSG 1099 | 3711 |
| 41 | VIRGINIA POLY INST | Kvaternik, R. G. | LARC | Meirovitch, L. | NSG 1114 | 3713 |
| 41 | VIRGINIA POLY INST | Montgomery, R. C. | LARC | Van Landingham, H. E. | NSG 1239 | 3721 |
| 41 | VIRGINIA POLY INST | Hefner, J. N. | LARC | Nayfeh, A. H. | NSG 1255 | 3724 |
| 41 | VIRGINIA POLY INST | Yates, E. C., Jr. | LARC | Nayfeh, A. H. | NSG 1262 | 3725 |
| 41 | VIRGINIA POLY INST | Diedrich, J. H. | LERC | Jakubowski, A. K. | NSG 3073 | 3731 |
| 41 | VIRGINIA STATE COL | Lester, H. C. | LARC | Agrawal, K. M. | NGL 47-014-009 | 3733 |
| 41 | WASHINGTON UNIVERSIT | Morse, H. A. | ARC | Hohenemser, K. H. | NAS 2-7613 | 2706 |
| 41 | WICHITA STATE UNIV | Hicks, R. M. | ARC | Wentz, W. H., Jr. | NSG 2134 | 2221 |
| 41 | WICHITA STATE UNIV | Noonan, K. W. | LARC | Wentz, W. H., Jr. | NGR 17-003-021 | 2217 |
| 41 | WICHITA STATE UNIV | McGhee, R. J. | LARC | Wentz, W. H., Jr. | NSG 1165 | 2218 |
| 41 | WICHITA STATE UNIV | Bowman, J. S., Jr. | LARC | Craig, A. J. | NSG 1189 | 2219 |
| 41 | WICHITA STATE UNIV | Morgan, H. L., Jr. | LARC | Zumwalt, G. W. | NSG 1192 | 2220 |
| 42 | CAL STATE U-SACRAMEN | Priem, R. J. | LERC | Reardon, F. H. | NGR 05-058-003 | 1267 |
| 42 | COLORADO STATE UNIV | Priem, R. J. | LERC | Mitchell, C. E. | NGR 06-002-095 | 1739 |
| 42 | COLORADO STATE UNIV | Serafini, J. S. | LERC | Wilhelm, H. E. | NGR 06-002-147 | 1745 |
| 42 | COLORADO STATE UNIV | Mirtich, M. J. | LERC | Kaufman, H. R. | NSG 3011 | 1750 |
| 42 | GEORGIA INST OF TECH | Priem, R. J. | LERC | Zinn, B. T. | NGR 11-002-179 | 1985 |
| 42 | GEORGIA INST OF TECH | Priem, R. J. | LERC | Zinn, B. T. | NSG 3052 | 1993 |
| 42 | MASS INST OF TECH | Young, R. S. | HQ-SL | Biemann, K. | NGR 22-009-102 | 2458 |
| 42 | PENN STATE U-UNIV PK | Priem, R. J. | LERC | Faeth, G. M. | NGR 39-009-077 | 3243 |
| 42 | PENN STATE U-UNIV PK | Cramblitt, D. | HQ-MT | Kaplan, M. | NSG 7078 | 3259 |
| 42 | POLY INST OF NY | Hoppe, J. C. | LARC | Lederman, S. | NSG 1198 | 2963 |
| 42 | PRINCETON UNIVERSITY | Barbieri, R. W. | GSFC | Lion, P. M. | NGR 31-001-152 | 2768 |
| 42 | PRINCETON UNIVERSITY | Lazar, J. | HQ-RP | Jahn, R. G. | NGL 31-001-005 | 2762 |
| 42 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Croft, T. A. | NCA 2-745510 | 1358 |
| 42 | STANFORD UNIVERSITY | Howe, J. T. | ARC | Bershtades, D. | NSG 2085 | 1426 |
| 42 | STANFORD UNIVERSITY | Lidston, J. M. | GSFC | Debra, D. B. | NAS 5-21960 | 1343 |
| 42 | TEXAS A&M UNIVERSITY | Staylor, W. F. | LARC | Kattawar, G. W. | NAS 1-14185 | 3404 |
| 42 | UNIV ALA-HUNTSVILLE | Swenson, G. R. | MSFC | Hermann, R. | NAS 8-28248 | 1045 |
| 42 | UNIV HOUSTON-HOUSTON | Eggleston, J. M. | JSC | Michalopoulos, C. D. | NAS 9-14347 | 3451 |
| 42 | UNIV OF LOUISVILLE | Gross, L. A. | MSFC | Childs, D. W. | NAS 8-31233 | 2233 |
| 42 | UNIV MICH-ANN ARBOR | Wright, D. | LERC | Ferris, J. | NAS 3-19533 | 2554 |
| 42 | UNIV MICH-ANN ARBOR | Haggard, J. B., Jr. | LERC | Nicholls, J. A. | NGR 23-005-536 | 2584 |
| 42 | UNIV TENNESSEE-KNOXV | Hertsgaard, H. B. | MSFC | Kennedy, E. J. | NAS 8-27296 | 3330 |
| 43 | AUBURN UNIV-AUBURN | Shackelford, B. W. | MSFC | Sforzini, R. H. | NCA 8-108 | 1026 |
| 43 | AUBURN UNIV-AUBURN | Shackelford, B. W. | MSFC | Sforzini, R. H. | NCA 8-120 | 1028 |

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| 43 | AUBURN UNIV-AUBURN | Shackleford, B. W. | MSFC | Sforzini, R. H. | NCA 8-124 | 1029 |
| 43 | CASE WESTERN RESERVE | Connolley, D. J. | LERC | Angus, J. C. | NSG 3074 | 3095 |
| 43 | FLORIDA INST OF TECH | Franks, H. H. | KSC | Bowman, T. E. | NAS10-8399 | 1903 |
| 43 | GEORGIA INST OF TECH | Harris, J. W. | JSC | Hart, R. K. | NSG 9040 | 1999 |
| 43 | GRAMBLING STATE UNIV | Bogard, D. D. | JSC | Sabu, D. D. | NGR 19-011-012 | 2239 |
| 43 | MASS INST OF TECH | Mularz, E. J. | LERC | Heywood, J. B. | NGR 22-009-378 | 2462 |
| 43 | MASS INST OF TECH | Norgren, C. T. | LERC | Howard, J. B. | NSG 3102 | 2514 |
| 43 | RICE UNIVERSITY | Kissinger, L. D. | JSC | Davis, S. H. | NAS 9-11827 | 3387 |
| 43 | SAN JOSE STATE UNIV | Kourtides, D. A. | ARC | Young, W. | NSG 2105 | 1329 |
| 43 | STATE U NY-STONY BRK | Cochran, T. H. | LERC | Berlad, A. L. | NSG 3051 | 3018 |
| 43 | UNIV CALIF-BERKELEY | Wydeven, T., Jr. | ARC | Bell, A. T. | NSG 2043 | 1495 |
| 43 | UNIV CALIF-SAN DIEGO | Cochran, T. H. | LERC | Williams, F. A. | NSG 3047 | 1635 |
| 43 | UNIV OF FLORIDA | Post, R. E. | LERC | Walker, R. D., Jr. | NGL 10-005-022 | 1922 |
| 43 | UNIV OF FLORIDA | Sheibley, D. W. | LERC | Walker, R. D., Jr. | NGR 10-005-182 | 1927 |
| 43 | UNIV ILLINOIS-URBANA | Cochran, T. H. | LERC | Strehlow, R. A. | NSG 3043 | 2092 |
| 43 | UNIV OF PITTSBURGH | Kostiuk, T. | GSFC | Falk, J. | NAS 5-22892 | 3271 |
| 43 | UNIV SO CAROLINA-COL | Jorolan, A. E. | KSC | Bonnell, R. D. | NAS10-8354 | 3310 |
| 43 | VIRGINIA POLY INST | Dibattista, J. D. | LARC | Drew, S. W. | NSG 1230 | 3719 |
| 44 | COLORADO STATE UNIV | Cliff, W. C. | MSFC | Cermak, J. E. | NAS 8-29583 | 1726 |
| 44 | COLORADO STATE UNIV | Fichtl, G. H. | MSFC | Sandhorn, V. A. | NAS 8-31688 | 1731 |
| 44 | DUKE UNIVERSITY | Snyder, W. J. | LARC | Dajani, J. S. | NSG 1121 | 3049 |
| 44 | HOWARD UNIVERSITY | Kruszewski, E. T. | LARC | Broome, T. H. | NSG 1130 | 1886 |
| 44 | OLD DOMINION UNIV | Leland, T. J. | LARC | Cheng, R. | NGL 47-003-012 | 3609 |
| 44 | OLD DOMINION UNIV | Weidman, D. J. | LARC | Narayanaswami, R. | NSG 1117 | 3630 |
| 44 | UNIV ALA-HUNTSVILLE | Morton, R. R. | MSFC | Grohse, E. W. | NAS 8-31169 | 1054 |
| 44 | UNIV CALIF-BERKELEY | Kourtides, D. A. | ARC | Williamson, R. B. | NSG 2026 | 1494 |
| 44 | UNIV OF KANSAS | Pritchard, E. B. | LARC | Lenzen, K. H. | NSG 1310 | 2207 |
| 44 | VIRGINIA POLY INST | Hayduk, R. J. | LARC | Kamat, M. P. | NGR 47-004-114 | 3701 |
| 44 | VIRGINIA POLY INST | Kruszewski, E. T. | LARC | Meirovitch, L. | NSG 1109 | 3712 |
| 45 | ALABAMA A&M UNIV | Teasdale, W. E. | JSC | Weathers, G. D. | NAS 9-14770 | 1000 |
| 45 | ALABAMA A&M UNIV | Lowrey, D. O. | MSFC | Weather, G. D. | NSG 8013 | 1006 |
| 45 | AUBURN UNIV-AUBURN | Emens, F. H. | MSFC | Irwin, J. D. | NAS 8-20765 | 1015 |
| 45 | AUBURN UNIV-AUBURN | White, J. B. | MSFC | Carroll, B. D. | NAS 8-26930 | 1016 |
| 45 | AUBURN UNIV-AUBURN | Gould, J. M. | MSFC | Carroll, B. D. | NAS 8-31190 | 1022 |
| 45 | AUBURN UNIV-AUBURN | Keer, J. H. | MSFC | Pinson, L. J. | NAS 8-31223 | 1023 |
| 45 | AUBURN UNIV-AUBURN | Matheney, J. L. | MSFC | Carroll, B. D. | NAS 8-31572 | 1024 |
| 45 | BROWN UNIVERSITY | Kelly, W. L., IV | LARC | Patterson, W. R., III | NSG 1222 | 3300 |
| 45 | CASE WESTERN RESERVE | McAvoy, N. | GSFC | Pao, Y. H. | S-27376B | 3101 |
| 45 | CASE WESTERN RESERVE | Nice, A. W. | LERC | Pao, J. H. | NSG 3085 | 3098 |
| 45 | CITY COLLEGE OF N Y | Miller, J. E. | GSFC | Schilling, D. L. | NSG 5013 | 2856 |
| 45 | CITY COLLEGE OF N Y | Batson, B. H. | JSC | Schilling, D. L. | NAS 9-13940 | 2850 |
| 45 | COLORADO STATE UNIV | Zill, L. P. | ARC | She, C. Y. | NCA 2-165603 | 1736 |
| 45 | COLORADO STATE UNIV | Rositano, S. A. | ARC | Sun, C. T. | NSG 2009 | 1749 |
| 45 | COLORADO STATE UNIV | Berge, L. H. | MSFC | Jones, T. B. | NAS 8-30250 | 1727 |
| 45 | DUKE UNIVERSITY | Rodriguez, G. E. | GSFC | Wilson, T. G. | NAS 5-22475 | 3046 |
| 45 | DUKE UNIVERSITY | Rodriguez, G. E. | GSFC | Simonett, D. S. | NGL 34-001-001 | 3047 |
| 45 | DUKE UNIVERSITY | Cote, C. E. | GSFC | Wang, P. P. | NSG 5020 | 3051 |
| 45 | GEORGE WASHINGTON U | Swift, C. T. | LARC | Liebowitz, H. | NGR 09-010-096 | 1863 |
| 45 | GEORGE WASHINGTON U | Bailey, M. C. | LARC | Liebowitz, H. | NSG 1110 | 1865 |
| 45 | GEORGIA INST OF TECH | O'Donnell, H. | GSFC | Ryan, C. E. | NAS 5-22344 | 1966 |
| 45 | GEORGIA INST OF TECH | Dod, L. R. | GSFC | Bassett, H. L. | NAS 5-22422 | 1967 |
| 45 | GEORGIA INST OF TECH | King, J. L. | GSFC | Dees, J. W. | NAS 5-23603 | 1968 |
| 45 | GEORGIA INST OF TECH | King, J. L. | GSFC | Dees, J. W. | NSG 5012 | 1995 |
| 45 | GEORGIA INST OF TECH | Wright, M. I. | KSC | Webb, R. P. | NAS10-8375 | 1979 |
| 45 | GEORGIA INST OF TECH | Conroy, M. J. | LERC | Bassett, H. L. | NAS 3-18901 | 1962 |
| 45 | GEORGIA INST OF TECH | Stevens, G. | LERC | Hilson, N. | NAS 3-20110 | 1964 |
| 45 | HAMPTON INSTITUTE | Katzberg, S. J. | LARC | Trehan, A. K. | NSG 1146 | 3599 |
| 45 | HAMPTON INSTITUTE | Katzberg, S. J. | LARC | Trehan, A. K. | NSG 1294 | 3600 |

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| 45 | HOFSTRA UNIVERSITY | Swift, C. T. | LARC | Weissman, D. E. | NGR 33-209-002 | 2940 |
| 45 | HOWARD UNIVERSITY | Savely, R. T. | JSC | Choudhury, A. K. | NSG 9010 | 1893 |
| 45 | JOHNS HOPKINS UNIV | Bavuso, S. J. | LARC | Masson, G. M. | NSG 1265 | 2285 |
| 45 | KANSAS STATE UNIV | Zill, L. P. | ARC | Ahmed, N. | NCA 2-363501 | 2182 |
| 45 | MASS INST OF TECH | Freibaum, J. | HQ-EC | Unavailable | NASW 2787 | 2442 |
| 45 | MASS INST OF TECH | Alsberg, H. | HQ-RE | Kennedy, R. S. | NGL 22-009-013 | 2444 |
| 45 | MEMPHIS ST UNIV | Shack, P. E. | JSC | Morris, C. F. | NAS 9-13878 | 3321 |
| 45 | MISSISSIPPI STATE U | Pitts, E. H. | MSFC | Rogers, T. W. | NAS 8-30618 | 2660 |
| 45 | MISSISSIPPI STATE U | Smith, H. F. | MSFC | Ingels, F. M. | NAS 8-31373 | 2662 |
| 45 | NEW MEX ST U-LAS CR | Schlimmer, G. E. | KSC | Bumgarner, R. A. | NAS10-7399 | 2807 |
| 45 | NO CAROLINA STATE U | Croswell, W. F. | LARC | Herman, B. M. | NGR 34-002-188 | 3062 |
| 45 | NO CAROLINA STATE U | Hutchby, J. A. | LARC | Hauser, J. R. | NSG 1116 | 3066 |
| 45 | NO CAROLINA STATE U | Godlewski, M. P. | LERC | Hauser, J. R. | NGR 34-002-195 | 3063 |
| 45 | OHIO STATE UNIV | Billingham, J. | ARC | Dixon, R. S. | NSG 2162 | 3129 |
| 45 | OHIO STATE UNIV | Hirschmann, E. | GSFC | Hodge, D. B. | NAS 5-22575 | 3113 |
| 45 | OHIO STATE UNIV | Hirschmann, E. | GSFC | Ksienski, A. A. | NGR 36-008-080 | 3121 |
| 45 | OHIO STATE UNIV | Gilreath, M. C. | LARC | Burnside, W. D. | NGL 36-008-138 | 3120 |
| 45 | OHIO STATE UNIV | Cooper, D. W. | LERC | Peake, W. H. | NSG 3005 | 3130 |
| 45 | OHIO UNIVERSITY | Reid, H. J., Jr. | LARC | McFarland, R. H. | NAS 1-14124 | 3131 |
| 45 | OHIO UNIVERSITY | Reid, H. J., Jr. | LARC | McFarland, R. H. | NGR 36-009-017 | 3133 |
| 45 | OLD DOMINION UNIV | Tripp, J. S. | LARC | Tcheng, P. L. | NSG 1079 | 3626 |
| 45 | OLD DOMINION UNIV | Hellbaum, R. F. | LARC | Goglia, G. L. | NSG 1177 | 3638 |
| 45 | RENSSELAER POLY-NY | Grant, T. L. | ARC | Modestino, J. W. | NGR 33-018-188 | 2980 |
| 45 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Catalano, G. T. | NCA 2-660411 | 1277 |
| 45 | SO DAKOTA SCHL MINES | Reinhardt, V. S. | GSFC | Gruber, C. L. | NAS 5-23470 | 3314 |
| 45 | SOUTHERN METHODIST U | Walker, G. H. | LARC | Ashley, K. L. | NSG 1206 | 3401 |
| 45 | SO UNIV-BATON ROUGE | Echelkamp, R. E. | JSC | Grewal, G. S. | NSG 9030 | 2258 |
| 45 | SO UNIV-BATON ROUGE | Trenkle, J. J. | MSFC | Anderson, J. A. | NSG 8028 | 2256 |
| 45 | STANFORD UNIVERSITY | Lorell, K. R. | ARC | Powell, J. D. | NAS 2-9002 | 1337 |
| 45 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Peterson, A. M. | NCA 2-745513 | 1361 |
| 45 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Powell, J. D. | NCA 2-745518 | 1366 |
| 45 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Parker, E. B. | NCA 2-745606 | 1375 |
| 45 | STANFORD UNIVERSITY | Baker, J. | GSFC | Villard, O. G. | NAS 5-10102 | 1340 |
| 45 | STANFORD UNIVERSITY | Williams, T. S., Jr. | LARC | Tyler, G. L. | NAS 1-9701 | 1334 |
| 45 | STANFORD UNIVERSITY | Pontious, C. E. | HQ-RE | McCarthy, J. | NASW 2916 | 1349 |
| 45 | STANFORD UNIVERSITY | Pontious, C. E. | HQ-RE | Harris, S. E. | NGL 05-020-103 | 1383 |
| 45 | SYRACUSE UNIVERSITY | Stermer, R. L. | LARC | Schroder, K. | NSG 1194 | 3033 |
| 45 | TENNESSEE TECH U | Kadmas, K. A. | MSFC | Childress, R. Q. | NAS 8-31252 | 3325 |
| 45 | TENNESSEE TECH U | Humphries, W. R. | MSFC | Griggs, E. I. | NCA 8-102 | 3327 |
| 45 | TEXAS A&M UNIVERSITY | Nowakowski, M. F. | MSFC | Porter, W. A. | NAS 8-26379 | 3410 |
| 45 | TEXAS TECH UNIV | Day, J. L. | JSC | Portnoy, W. M. | NAS 9-11162 | 3441 |
| 45 | TUSKEGEE INSTITUTE | Crowell, C. S. | MSFC | Doreswamy, C. V. | NSG 8003 | 1038 |
| 45 | TUSKEGEE INSTITUTE | Young, L. E. | MSFC | Doreswamy, C. V. | NSG 8038 | 1039 |
| 45 | UNIV ALA-TUSCALOOSA | Emens, F. H. | MSFC | Houts, R. C. | NAS 8-20172 | 1069 |
| 45 | UNIV OF ARIZONA | Zill, L. P. | ARC | Call, R. L. | NCA 2-40502 | 1115 |
| 45 | UNIV OF ARIZONA | Zill, L. P. | ARC | Williams, P. L. | NCA 2-40503 | 1116 |
| 45 | UNIV OF ARIZONA | Schwenk, F. C. | HQ-NS | Schultz, D. G. | NGL 03-002-006 | 1129 |
| 45 | UNIV OF ARIZONA | Roman, N. G. | HQ-SA | Tifft, W. G. | NSG 7142 | 1166 |
| 45 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Angelakos, D. J. | NCA 2-50406 | 1454 |
| 45 | UNIV CALIF-BERKELEY | Billman, K. W. | ARC | Gustafson, T. K. | NGR 05-003-559 | 1489 |
| 45 | UNIV CALIF-DAVIS | Huffstetler, W. J. | JSC | Owens, E. W. | NAS 9-14696 | 1515 |
| 45 | UNIV OF CINCINNATI | Sundberg, G. R. | LERC | Henderson, H. T. | NSG 3022 | 3142 |
| 45 | UNIV OF CINCINNATI | Grier, N. T. | LERC | Nevin, J. H. | NSG 3024 | 3143 |
| 45 | UNIV COLORADO-BOLDR | Jones, R. L. | LARC | Horowitz, I. | NSG 1140 | 1789 |
| 45 | UNIV COLORADO-BOLDR | Schy, A. A. | LARC | Wang, S. H. | NSG 1213 | 1790 |
| 45 | UNIV OF FLORIDA | Peake, H. J. | GSFC | Bailey, R. L. | NSG 5061 | 1930 |
| 45 | UNIV OF FLORIDA | Godlewski, M. P. | LERC | Lindholm, F. A. | NSG 3018 | 1929 |
| 45 | UNIV OF HAWAII-MANOA | Smith, M. C., Jr. | ARC | Lichtenberger, W. W. | NAS 2-9175 | 2019 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 45 | UNIV OF KANSAS | Bailey, M. C. | LARC | Biggs, A. W. | NSG 1142 | 2201 |
| 45 | UNIV MARYLAND-COL PK | Levine, D. M. | GSFC | Harger, R. O. | NSG 5048 | 2353 |
| 45 | UNIV OF MASS-AMHERST | Rolinski, A. J. | GSFC | Monopoli, R. V. | NGL 22-010-018 | 2536 |
| 45 | UNIV OF MIAMI | Shive, J. | GSFC | Unavailable | S-55672A | 1947 |
| 45 | UNIV MICH-ANN ARBOR | Way, S. H. | GSFC | MacNee, A. B. | NAS 5-22861 | 2564 |
| 45 | UNIV MICH-ANN ARBOR | Ross, R. W. | GSFC | Ponnamperuma, C. A. | NAS 5-23267 | 2568 |
| 45 | UNIV MICH-ANN ARBOR | Bavuso, S. J. | LARC | Meyer, J. F. | NSG 1306 | 2594 |
| 45 | UNIV MO-COLUMBIA | Johnson, D. A. | ARC | Miles, J. B. | NCA 2-450604 | 2693 |
| 45 | UNIV MO-COLUMBIA | Poland, W. B., Jr. | GSFC | Noack, T. L. | NAS 5-20826 | 2689 |
| 45 | UNIV MO-ROLLA | Dawson, C. T. | JSC | Tranter, W. H. | NAS 9-14848 | 2697 |
| 45 | UNIV OF NOTRE DAME | Lynch, T. J. | GSFC | Massey, J. L. | NSG 5025 | 2148 |
| 45 | UNIV OF NOTRE DAME | Hendricks, H. D. | LARC | Magee, C. J. | NSG 1102 | 2144 |
| 45 | UNIV OF NOTRE DAME | Lehtinen, B. | LERC | Leake, R. J. | NSG 3048 | 2146 |
| 45 | UNIV OKLAHOMA-NORMAN | Gross, C. | LARC | Kahng, S. K. | NSG 1183 | 3176 |
| 45 | UNIV OF PENNSYLVANIA | Durrani, S. H. | GSFC | Berkowitz, R. S. | NAS 5-23479 | 3264 |
| 45 | UNIV OF PENNSYLVANIA | Durrani, S. H. | GSFC | Berkowitz, R. S. | NSG 5064 | 3267 |
| 45 | UNIV SO CAROLINA-COL | Lowrey, D. O. | MSFC | Fellers, R. G. | NAS 8-28660 | 3309 |
| 45 | UNIV OF SO FLORIDA | Triner, J. E. | LERC | Garrett, S. J. | NSG 3096 | 1950 |
| 45 | UNIV OF SO FLORIDA | Caruso, S. V. | MSFC | Sergeant, J. | NAS 8-31172 | 1948 |
| 45 | UNIV OF SOUTHERN CAL | Kutz, R. L. | GSFC | Davisson, L. D. | NAS 5-21505 | 1706 |
| 45 | UNIV OF SOUTHERN CAL | Kutz, R. L. | GSFC | Andrews, H. C. | NGL 05-018-118 | 1712 |
| 45 | UNIV TENNESSEE-KNOXV | Huggins, C. T. | MSFC | Gonzalez, R. C. | NAS 8-29271 | 3331 |
| 45 | UNIV TEXAS-AUSTIN | Hirschmann, E. | GSFC | Straiton, A. W. | NAS 5-21982 | 3480 |
| 45 | UNIV TEXAS-AUSTIN | Hirschmann, E. | GSFC | Straiton, A. W. | NAS 5-22576 | 3481 |
| 45 | UNIV TEXAS-AUSTIN | Fenner, R. G. | JSC | Beckner, F. | NAS 9-14892 | 3490 |
| 45 | UNIV TEXAS-AUSTIN | Roth, J. R. | LERC | Powers, E. J. | NSG 3089 | 3512 |
| 45 | UNIV OF TOLEDO | Lehtinen, B. | LERC | Leininger, G. G. | NSG 3063 | 3155 |
| 45 | UNIV OF TOLEDO | Lehtinen, B. | LERC | Leininger, G. G. | NSG 3084 | 3156 |
| 45 | UNIV OF UTAH | Coler, C. R. | ARC | Plummer, R. P. | NGR 45-003-108 | 3568 |
| 45 | UNIV OF VIRGINIA | Kelly, W. L. | LARC | White, E. J. | NAS 1-10210 | 3662 |
| 45 | UNIV OF VIRGINIA | Shultz, L. R. | LARC | McAlpine, G. A. | NSG 1128 | 3679 |
| 45 | UNIV OF VIRGINIA | Husson, C. | LARC | Parrish, E. A., Jr. | NSG 1223 | 3682 |
| 45 | VIRGINIA POLY INST | Hirschmann, E. | GSFC | Bostian, C. W. | NAS 5-21984 | 3693 |
| 45 | VIRGINIA POLY INST | Hirschmann, E. | GSFC | Bostian, C. W. | NAS 5-22577 | 3694 |
| 45 | WASHINGTON TECH INST | Ehrmann, C. H. | GSFC | Brach, P. L. | NAS 5-22383 | 1894 |
| 45 | WASHINGTON TECH INST | Ehrmann, C. H. | GSFC | Brach, P. L. | NGR 09-059-002 | 1896 |
| 45 | WAYNE STATE UNIV | Dunning, J. W., Jr. | LERC | Wang, E. Y. | NGR 23-006-063 | 2608 |
| 45 | WAYNE STATE UNIV | Dunning, J. W., Jr. | LERC | Yu, F. T. | NSG 3035 | 2611 |
| 45 | WEST VIRGINIA UNIV | Johnson, J. W. | LARC | Balanis, C. A. | NGR 49-001-056 | 3768 |
| 45 | YALE UNIVERSITY | Schaefer, D. H. | GSFC | Barker, R. C. | NGL 07-004-005 | 1824 |
| 46 | ALABAMA A&M UNIV | Humphries, W. R. | MSFC | Saha, H. | NSG 8041 | 1010 |
| 46 | CALIF INST OF TECH | Gross, L. A. | MSFC | Acosta, A. J. | NAS 8-29313 | 1199 |
| 46 | CAL STATE U-L ANGLES | Pohly, J. G. | HQ-P | Maniv, R. | NSG 7229 | 1265 |
| 46 | CAL STATE U-NRTHRDGE | Coe, H. H. | LERC | Nypan, L. J. | NSG 3065 | 1266 |
| 46 | CARNEGIE-MELLON UNIV | Srawley, J. E. | LERC | Swedlow, J. L. | NGR 39-087-053 | 3201 |
| 46 | CARNEGIE-MELLON UNIV | Ludwig, L. P. | LERC | Hughes, W. F. | NSG 3023 | 3202 |
| 46 | CASE WESTERN RESERVE | Brewe, D. E. | LERC | Savage, M. | NSG 3077 | 3096 |
| 46 | CASE WESTERN RESERVE | Schafer, C. F. | MSFC | Ostrach, S. | NAS 8-31802 | 3079 |
| 46 | CLEMSON UNIV-CLEMSON | Reveley, W. F. | JSC | Gaddis, J. L. | NAS 9-13669 | 3304 |
| 46 | CLEMSON UNIV-CLEMSON | Poe, C. C., Jr. | LARC | Goree, J. G. | NSG 1297 | 3307 |
| 46 | CLEVELAND STATE UNIV | Townsend, D. P. | LERC | Kasuba, R. | NAS 3-18547 | 3105 |
| 46 | COLORADO STATE UNIV | Debs, R. J. | ARC | Loehrke, R. I. | NGR 06-002-127 | 1743 |
| 46 | COLORADO STATE UNIV | Kerslake, W. R. | LERC | Wilbur, P. J. | NGR 06-002-112 | 1742 |
| 46 | COLORADO STATE UNIV | Cliff, W. C. | MSFC | Winn, C. B. | NAS 8-31237 | 1728 |
| 46 | COLORADO STATE UNIV | Fichtl, G. H. | MSFC | Edwards, H. W. | NAS 8-31673 | 1730 |
| 46 | GEORGIA INST OF TECH | Kirkpatrick, J. P. | ARC | Colwell, G. T. | NSG 2054 | 1990 |
| 46 | GEORGIA INST OF TECH | Jones, W. R., Jr. | LERC | Winer, W. O. | NGR 11-002-133 | 1982 |
| 46 | GEORGIA INST OF TECH | Wedeven, L. D. | LERC | Winer, W. O. | NSG 3106 | 1994 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 46 | HOWARD UNIVERSITY | Huff, V. N. | HQ-MT | Bainum, P. M. | NGR 09-011-053 | 1881 |
| 46 | MEMPHIS ST UNIV | Patterson, W. C. | MSFC | Perry, E. | NAS 8-31189 | 3320 |
| 46 | MISSISSIPPI STATE U | Fleming, D. P. | LERC | Stiffler, A. K. | NGR 25-001-050 | 2670 |
| 46 | MISSISSIPPI STATE U | Fleming, D. P. | LERC | Stiffler, A. K. | NSG 3111 | 2677 |
| 46 | NEW MEX ST U-LAS CR | West, W. W. | WFC | Gammill, B. G. | NAS 6-2686 | 2804 |
| 46 | NORTHWESTERN UNIV | Zaretsky, E. V. | LERC | Cheng, H. | NGR 14-007-084 | 2043 |
| 46 | NORTHWESTERN UNIV | Zaretsky, E. V. | LERC | Cheng, H. S. | NSG 3042 | 2049 |
| 46 | OLD DOMINION UNIV | Hefner, J. N. | LARC | Goglia, G. L. | NSG 1236 | 3644 |
| 46 | PENN STATE U-UNIV PK | Dittmar, J. H. | LERC | Henderson, R. E. | NGR 39-009-275 | 3247 |
| 46 | PURDUE UNIVERSITY | Feiler, C. E. | LERC | Peterson, A. M. | NSG 3029 | 2136 |
| 46 | ROCHESTER INST TECH | Anderson, W. J. | LERC | Rieger, N. F. | NSG 3072 | 2987 |
| 46 | SO UNIV-BATON ROUGE | Williamson, J. G. | MSFC | Frederick, D. K. | NSG 8025 | 2255 |
| 46 | SO UNIV-BATON ROUGE | Trenkle, J. J. | MSFC | Scott, R. L., Jr. | NSG 8029 | 2257 |
| 46 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Debra, D. | NCA 2-745601 | 1370 |
| 46 | STANFORD UNIVERSITY | Goldstein, H. E. | ARC | Bates, C. W. | NGR 05-020-710 | 1414 |
| 46 | STANFORD UNIVERSITY | Graham, R. W. | LERC | Kays, W. M. | NGL 05-020-134 | 1384 |
| 46 | TENNESSEE STATE UNIV | Humphries, W. R. | MSFC | Houghton, R. | NSG 8012 | 3323 |
| 46 | TENNESSEE STATE UNIV | Cliff, W. C. | MSFC | Busby, M. R. | NSG 8032 | 3324 |
| 46 | TENNESSEE TECH U | Priem, R. J. | LERC | Purdy, K. R. | NGR 43-003-015 | 3328 |
| 46 | TUSKEGEE INSTITUTE | French, B. O. | JSC | Sellers, J. P. | NAS 9-13844 | 1035 |
| 46 | UNIV ALA-HUNTSVILLE | Lacy, L. L. | MSFC | Otto, G. H. | NAS 8-31768 | 1063 |
| 46 | UNIV ALA-TUSCALOOSA | Schutzenhofer, L. A. | MSFC | Doughty, J. O. | NAS 8-30624 | 1077 |
| 46 | UNIV CALIF-BERKELEY | Marek, C. J. | LERC | Branch, M. C. | NSG 3028 | 1503 |
| 46 | UNIV CALIF-L ANGELES | Savino, J. M. | LERC | Friedman, P. P. | NSG 3082 | 1581 |
| 46 | UNIV OF CANTERBURY | Rice, E. J. | LERC | Eversman, W. | NSG 7192 | 3824 |
| 46 | UNIV COLORADO-BOLDR | Holland, W. B. | MSFC | Feng, C. C. | NAS 8-31619 | 1770 |
| 46 | UNIV OF DELAWARE | Deaton, J. W. | LARC | Pipes, R. B. | NSG 1304 | 1833 |
| 46 | UNIV ILLINOIS-URBANA | Scribbs, H. W. | LERC | Conry, T. F. | NSG 3098 | 2094 |
| 46 | UNIV OF KANSAS | Couch, J. P. | LERC | Lenzen, K. H. | NSG 3087 | 2209 |
| 46 | UNIV OF KENTUCKY | McCutcheon, E. P. | ARC | Knapp, C. E. | NAS 2-8883 | 2224 |
| 46 | UNIV OF KENTUCKY | Jackson, M. M. | JSC | Lafferty, J. F. | NAS 9-14392 | 2226 |
| 46 | UNIV MICH-ANN ARBOR | Zill, L. P. | ARC | Howe, R. M. | NCA 2-440601 | 2573 |
| 46 | UNIV MICH-ANN ARBOR | Ream, L. W. | LERC | Kroeger, R. A. | NAS 3-20051 | 2555 |
| 46 | UNIV MO-ROLLA | Wedeven, L. D. | LERC | Medrow, R. A. | NSG 3113 | 2704 |
| 46 | UNIV NEBRASKA-LINCLN | Johnston, J. D. | MSFC | Kersten, L. | NAS 8-31897 | 2724 |
| 46 | UNIV OF NEW MEXICO | Hellbaum, R. F. | LARC | Richards, C. G. | NGR 32-004-026 | 2833 |
| 46 | UNIV TENNESSEE-KNOXV | Fichtl, G. H. | MSFC | Frost, W. | NAS 8-29584 | 3332 |
| 46 | UNIV TENNESSEE-KNOXV | Ellsworth, D. J. | MSFC | Hung, J. C. | NAS 8-29632 | 3333 |
| 46 | UNIV OF UTAH | Wasel, R. A. | HQ-RP | Devires, K. L. | NGL 45-003-037 | 3566 |
| 46 | UNIV OF WASHINGTON | Zill, L. P. | ARC | Mueller, J. I. | NCA 2-850602 | 3742 |
| 46 | VIRGINIA POLY INST | Price, H. L. | LARC | Stinchcomb, W. W. | NSG 1254 | 3723 |
| 46 | WASHINGTON UNIVERSTY | Deaton, J. W. | LARC | Wu, E. M. | NSG 1157 | 2715 |
| 47 | CARNEGIE-MELLON UNIV | Witzke, W. | LERC | Bhat, G. K. | NAS 3-18929 | 3197 |
| 47 | CARNEGIE-MELLON UNIV | Klopp, W. D. | LERC | Low, J. R., Jr. | NGR 39-087-003 | 3198 |
| 47 | CARNEGIE-MELLON UNIV | Klopp, W. D. | LERC | Low, J. R., Jr. | NGR 39-087-047 | 3200 |
| 47 | CASE WESTERN RESERVE | Glasgow, T. K. | LERC | Ebert, L. J. | NGL 36-003-094 | 3082 |
| 47 | CASE WESTERN RESERVE | Andrews, C. W. | LERC | Hehemann, R. H. | NGR 36-027-051 | 3084 |
| 47 | CASE WESTERN RESERVE | Probst, H. B. | LERC | Mitchell, T. E. | NSG 3027 | 3090 |
| 47 | CASE WESTERN RESERVE | Fortini, A. | LERC | Dybbs, A. | NSG 3040 | 3091 |
| 47 | CASE WESTERN RESERVE | Hirschberg, M. H. | LERC | Manson, S. S. | NSG 7035 | 3100 |
| 47 | COLUMBIA UNIVERSITY | Glasgow, T. K. | LERC | Tien, J. K. | NSG 3050 | 2888 |
| 47 | CORNELL UNIVERSITY | Nelson, H. G. | ARC | Johnson, H. H. | NSG 2078 | 2927 |
| 47 | CORNELL UNIVERSITY | Aron, P. R. | LERC | Ruoff, A. L. | NGR 33-010-189 | 2923 |
| 47 | GEORGE WASHINGTON U | Swann, R. T. | LARC | Liebowitz, H. | NSG 1155 | 1866 |
| 47 | GEORGE WASHINGTON U | Poe, C. C., Jr. | LARC | Liebowitz, H. | NSG 1228 | 1870 |
| 47 | GEORGE WASHINGTON U | Elber, W. | LARC | Liebowitz, H. | NSG 1289 | 1873 |
| 47 | GEORGIA INST OF TECH | Eudy, R. G. | MSFC | Brown, J. | H-23602B | 1958 |
| 47 | HIRAM COLLEGE | Buckley, D. H. | LERC | Wheeler, D. R. | NSG 3026 | 3106 |

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| 47 | LEHIGH UNIVERSITY | Zill, L. P. | ARC | Wei, R. P. | NCA 2-380501 | 3214 |
| 47 | LEHIGH UNIVERSITY | Poe., C. C., Jr. | LARC | Arin, K. | NSG 1178 | 3222 |
| 47 | LEHIGH UNIVERSITY | Ashbrook, R. L. | LERC | Kraft, R. W. | NGL 39-007-007 | 3216 |
| 47 | LEHIGH UNIVERSITY | Bond, J. B. | MSFC | Vander Hoff, J. W. | NAS 8-28654 | 3211 |
| 47 | MASS INST OF TECH | Harris, J. W. | JSC | Uhlmann, D. R. | NGR 22-009-646 | 2469 |
| 47 | MASS INST OF TECH | Byvik, C. E. | LARC | Gatos, H. C. | NSG 1190 | 2493 |
| 47 | MASS INST OF TECH | Quatinetz, M. | LERC | Grant, N. J. | NGL 22-009-003 | 2443 |
| 47 | MASS INST OF TECH | Scheuermann, C. M. | LERC | Flemings, M. C. | NSG 3046 | 2507 |
| 47 | MASS INST OF TECH | Vary, A. | LERC | Williams, J. H., Jr. | NSG 3064 | 2509 |
| 47 | MASS INST OF TECH | Davidson, M. C. | MSFC | Gatos, H. C. | NAS 8-30537 | 2434 |
| 47 | MASS INST OF TECH | Chassay, R. P. | MSFC | Uhlmann, D. R. | NAS 8-31350 | 2438 |
| 47 | MASS INST OF TECH | Reeves, F. A. | MSFC | Hopper, R. W. | NAS 8-31552 | 2439 |
| 47 | MASS INST OF TECH | Gangler, J. J. | HQ-RW | Unavailable | W-13995 | 2527 |
| 47 | MICHIGAN STATE UNIV | Elber, W. | LARC | Sharp, W. N., Jr. | NSG 1148 | 2547 |
| 47 | MISSISSIPPI STATE U | King, H. M. | MSFC | Hall, W. B. | NCA 8-107 | 2667 |
| 47 | NEW MEX ST U-LAS CR | Nitschke, H. A. | JSC | Carver, K. | NAS 9-95469 | 2805 |
| 47 | NO CAR A&T STATE U | Rhodes, M. D. | LARC | Sharma, A. V. | NSG 1296 | 3055 |
| 47 | NO CAROLINA STATE U | Hagginbothom, W. K., Jr. | LARC | Manning, C. R., Jr. | NGR 34-002-108 | 3061 |
| 47 | NO CAROLINA STATE U | O'Neal, R. L. | LARC | Manning, C. R., Jr. | NSG 1133 | 3067 |
| 47 | NO CAROLINA STATE U | O'Neal, R. L. | LARC | Bailey, J. A. | NSG 1136 | 3068 |
| 47 | NORTHWESTERN UNIV | Ludwig, L. P. | LERC | Burton, R. A. | NSG 3039 | 2048 |
| 47 | OHIO STATE UNIV | Gray, H. R. | LERC | Beck, F. H. | NGL 36-008-051 | 3118 |
| 47 | PENN STATE U-UNIV PK | Hirschberg, M. H. | LERC | Zamrik, S. Y. | NGR 39-009-034 | 3242 |
| 47 | PENN STATE U-UNIV PK | Sanders, W. A. | LERC | Bradt, R. C. | NSG 3016 | 3254 |
| 47 | PURDUE UNIVERSITY | Davidson, J. R. | LARC | Sun, C. T. | NSG 1278 | 2132 |
| 47 | RENSSELAER POLY-NY | Lad, R. A. | LERC | Wiberly, S. E. | NGL 33-018-003 | 2975 |
| 47 | RENSSELAER POLY-NY | Grimes, H. H. | LERC | Diefendorf, R. J. | NSG 3007 | 2983 |
| 47 | RENSSELAER POLY-NY | Davidson, M. C. | MSFC | Wiedmann, H. | NAS 8-26146 | 2971 |
| 47 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Holnstrom, F. | NCA 2-675317 | 1289 |
| 47 | SAN JOSE STATE UNIV | Altman, R. L. | ARC | Mayer, L. A. | NCA 2-675618 | 1322 |
| 47 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Barnett, D. M. | NCA 2-745603 | 1372 |
| 47 | STANFORD UNIVERSITY | Rubesin, M. W. | ARC | Reynolds, W. C. | NGR 05-020-622 | 1405 |
| 47 | STANFORD UNIVERSITY | Poppa, H. R. | ARC | Pound, G. M. | NSG 2071 | 1424 |
| 47 | STANFORD UNIVERSITY | Nachtsheim, P. R. | ARC | Bates, C. W. | NSG 2102 | 1429 |
| 47 | STANFORD UNIVERSITY | Whittenberger, J. D. | LERC | Sherby, O. D. | NGR 05-020-671 | 1410 |
| 47 | STATE U NY-STONY BRK | Levine, S. R. | LERC | Seigle, L. L. | NGR 33-015-160 | 3012 |
| 47 | SYRACUSE UNIVERSITY | Hirschberg, M. H. | LERC | Liu, H. W. | NGR 33-022-157 | 3032 |
| 47 | UNIV ALA-HUNTSVILLE | Lacy, L. L. | MSFC | Otto, G. H. | NAS 8-27809 | 1043 |
| 47 | UNIV ALA-HUNTSVILLE | Zwiener, J. M. | MSFC | Castle, J. G., Jr. | NAS 8-30774 | 1052 |
| 47 | UNIV OF ARIZONA | Allen, R. E. | MSFC | Bier, M. | NAS 8-31537 | 1111 |
| 47 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Everhart, T. E. | NCA 2-50501 | 1455 |
| 47 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Everhart, T. E. | NCA 2-50510 | 1461 |
| 47 | UNIV CALIF-BERKELEY | Stephens, J. R. | LERC | Morris, J. W. | NGR 05-003-562 | 1490 |
| 47 | UNIV CALIF-BERKELEY | Poppa, H. R. | HQ- | Everhart, T. E. | NCA 2-50605 | 1463 |
| 47 | UNIV CALIF-DAVIS | King, R. B. | LERC | Cahill, T. | NAS 3-19850 | 1512 |
| 47 | UNIV CALIF-L ANGELES | Johnson, R. L. | LERC | Amstutz, H. C. | NGR 05-007-338 | 1570 |
| 47 | UNIV CALIF-L ANGELES | Unavailable | HQ- | Unavailable | C-80166C | 1531 |
| 47 | UNIV CALIF-SAN DIEGO | Woollam, J. A. | LERC | Oesterreicher, H. | NSG 3034 | 1634 |
| 47 | UNIV OF KANSAS | Rummler, D. R. | LARC | Zerwekh, R. P. | NSG 1269 | 2203 |
| 47 | UNIV OF KANSAS | Howell, W. E. | LARC | Reesie, C. D. | NSG 1281 | 2204 |
| 47 | UNIV OF KENTUCKY | Sanders, W. A. | LERC | Leipold, M. H. | NGL 18-001-042 | 2227 |
| 47 | UNIV OF KENTUCKY | Brown, W. F., Jr. | LERC | Conrad, H. | NSG 3013 | 2232 |
| 47 | UNIV MARYLAND-COL PK | Stephens, J. R. | LERC | Drew, H. D. | NSG 3001 | 2348 |
| 47 | UNIV OF MIAMI | Lisagor, W. B. | LARC | Craig, H. L., Jr. | NSG 1283 | 1945 |
| 47 | UNIV OF MIAMI | Shannon, J. L., Jr. | LERC | Craig, H. L., Jr. | NGR 10-007-118 | 1944 |
| 47 | UNIV MICH-ANN ARBOR | Fichter, W. B. | LARC | Felbeck, D. K. | NGR 23-005-528 | 2583 |
| 47 | UNIV MICH-ANN ARBOR | Freche, J. C. | LERC | Wilson, D. J. | NGL 23-005-005 | 2574 |
| 47 | UNIV MO-ROLLA | Zill, L. P. | ARC | Levenson, L. L. | NCA 2-450501 | 2698 |

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| 47 | UNIV MO-ROLLA | Zill, L. P. | ARC | James, W. J. | NCA 2-450601 | 2699 |
| 47 | UNIV MO-ROLLA | Zill, L. P. | ARC | Levenson, L. L. | NCA 2-450603 | 2701 |
| 47 | UNIV NEBRASKA-LINCLN | Nelson, H. G. | ARC | Johnson, D. L. | NGR 28-004-025 | 2727 |
| 47 | UNIV OF PITTSBURGH | Stephens, J. R. | LERC | Meier, G. H. | NGR 39-011-164 | 3285 |
| 47 | UNIV TENNESSEE-KNOXV | Newman, J. C., Jr. | LARC | Wright, M. A. | NSG 1163 | 3343 |
| 47 | UNIV OF TORONTO | Foye, R. L. | LARC | Tennyson, R. C. | NSG 7219 | 3816 |
| 47 | UNIV OF WASHINGTON | Lad, R. A. | LERC | Mueller, J. I. | NGL 48-002-004 | 3743 |
| 47 | UNIV WISC-MADISON | Williams, J. R. | MSFC | Heine, R. W. | NAS 8-28733 | 3785 |
| 47 | VANDERBILT UNIVERSITY | Caruso, S. V. | MSFC | Kinser, D. L. | NAS 8-30883 | 3353 |
| 47 | VIRGINIA POLY INST | Williams, D. P. | ARC | Brinson, H. F. | NSG 2038 | 3730 |
| 47 | VIRGINIA POLY INST | Stein, B. A. | LARC | Lytton, J. L. | NGR 47-004-108 | 3700 |
| 47 | VIRGINIA POLY INST | Tenney, D. R. | LARC | Houska, C. R. | NSG 1214 | 3718 |
| 47 | WASHINGTON ST UNIV | Yates, I. C., Jr. | MSFC | Johnson, A. A. | NAS 8-29725 | 3764 |
| 47 | WAYNE STATE UNIV | Allen, R. E. | MSFC | Brown, R. K. | NAS 8-29823 | 2607 |
| 47 | OREGON GRADUATE CTR | Morris, J. F. | LERC | Swanson, L. W. | NSG 3054 | 3179 |
| 49 | AUBURN UNIV-AUBURN | Decker, A. J. | LERC | Ranson, W. F. | NSG 3109 | 1032 |
| 49 | AUBURN UNIV-AUBURN | Craighead, P. T. | MSFC | Boland, J. S., III | NAS 8-29852 | 1017 |
| 49 | AUBURN UNIV-AUBURN | Carter, C. H. | HQ-P | Vachon, R. I. | NGT 01-003-044 | 1030 |
| 49 | AUBURN UNIV-AUBURN | Carter, C. H. | HQ-P | O'Brien, J. F. | NGT 01-003-045 | 1031 |
| 49 | BALL STATE UNIVERSITY | Hastings, L. J. | MSFC | Cosby, R. M. | NCA 8-121 | 2100 |
| 49 | CALIF INST OF TECH | Pontious, C. E. | HQ-RE | Ingargiola, G. | NGR 05-002-340 | 1230 |
| 49 | CASE WESTERN RESERVE | Labus, T. L. | LERC | Ostrach, S. | NSG 3053 | 3092 |
| 49 | CASE WESTERN RESERVE | Carter, C. H. | HQ-P | Prahl, J. M. | NGT 36-027-011 | 3088 |
| 49 | CITY COLLEGE OF N Y | Ernst, H. E. | HQ-EE | Schilling, D. L. | NSG 7144 | 2857 |
| 49 | COLORADO STATE UNIV | Fichtl, G. H. | MSFC | Winn, C. B. | NAS 8-31347 | 1729 |
| 49 | COLUMBIA UNIVERSITY | Powell, C. A. | LARC | Borsky, P. N. | NSG 1164 | 2887 |
| 49 | CORNELL UNIVERSITY | Tarver, P. | HQ-SL | Wehe, R. L. | NASW 2573 | 2905 |
| 49 | CORNELL UNIVERSITY | Tarver, P. | HQ-SL | Wehe, R. L. | NASW 2750 | 2906 |
| 49 | GEORGE WASHINGTON U | McComb, H. G., Jr. | LARC | Toridis, T. G. | NAS 1-14313 | 1855 |
| 49 | GEORGE WASHINGTON U | Anderson, A. F. | LARC | Liebowitz, H. | NGL 09-010-053 | 1858 |
| 49 | GEORGIA INST OF TECH | Hein, G. F. | LERC | Zimmer, R. P. | NAS 3-17827 | 1961 |
| 49 | GEORGIA INST OF TECH | Stevenson, S. M. | LERC | Camp, A. A. | NAS 3-19700 | 1963 |
| 49 | GEORGIA INST OF TECH | Smith, O. E. | MSFC | Justus, C. G. | NAS 8-30657 | 1973 |
| 49 | HAMPTON INSTITUTE | Anderson, A. F. | LARC | Darden, G. C. | NCA 1-1 | 3594 |
| 49 | HARVARD UNIVERSITY | Rosendhal, J. D. | HQ-SA | Noyes, R. W. | NASW 2938 | 2390 |
| 49 | HOWARD UNIVERSITY | Mundy, J. R. | GSFC | Cox, E. L. | NCA 5-14 | 1878 |
| 49 | HOWARD UNIVERSITY | Pohly, J. G. | HQ-P | Cox, E. L. | NGT 09-011-058 | 1885 |
| 49 | JACKSON STATE UNIV | Zuk, J. | LERC | Chu, C. S. | NSG 3004 | 2654 |
| 49 | LINCOLN UNIV-PA | Pohly, J. G. | HQ-P | Williams, W., Jr. | NGT 39-108-750 | 3225 |
| 49 | MASS INST OF TECH | Doolin, B. F. | ARC | Athans, M. | NGL 22-009-124 | 2448 |
| 49 | MASS INST OF TECH | Doolin, B. F. | ARC | Athans, M. | NSG 2076 | 2500 |
| 49 | MASS INST OF TECH | Fichter, W. B. | LARC | Williams, J. H., Jr. | NSG 1217 | 2494 |
| 49 | MASS INST OF TECH | Chamis, C. C. | LERC | McGarry, F. G. | NSG 3044 | 2506 |
| 49 | MASS INST OF TECH | Gevarter, W. B. | HQ-RE | Winston, P. H. | NSG 7227 | 2526 |
| 49 | MICHIGAN STATE UNIV | Orange, T. W. | LERC | Sharp, W. N., Jr. | NSG 3101 | 2548 |
| 49 | MISSISSIPPI STATE U | Montgomery, W. D. | NSTL | Forbes, R. E. | NAS13-10 | 2665 |
| 49 | MORGAN STATE UNIV | Friedman, D. S. | GSFC | Collagan, R. B. | NAS 5-23558 | 2293 |
| 49 | NEW MEX ST U-LAS CR | Pohly, J. G. | HQ-P | Zimmerman, R. M. | NGT 32-003-750 | 2811 |
| 49 | NEW YORK UNIVERSITY | Labus, T. L. | LERC | Keller, J. B. | NSG 3059 | 2952 |
| 49 | NO CAR A&T STATE U | Pohly, J. G. | HQ-P | Chandra, S. | NGT 34-012-750 | 3053 |
| 49 | OLD DOMINION UNIV | Martin, D. J. | LARC | Ousterhout, D. S. | NAS 1-11707 | 3605 |
| 49 | OLD DOMINION UNIV | Holmes, H. K. | LARC | Zuckerwar, A. J. | NSG 1039 | 3622 |
| 49 | OLD DOMINION UNIV | Keckler, C. R. | LARC | Roberts, A. S., Jr. | NSG 1241 | 3646 |
| 49 | OLD DOMINION UNIV | Kruszewski, E. T. | LARC | Hyer, M. W. | NSG 1279 | 3653 |
| 49 | OLD DOMINION UNIV | Wieting, A. R. | LARC | Thornton, E. A. | NSG 1321 | 3659 |
| 49 | OLD DOMINION UNIV | Carter, C. H. | HQ-P | Goglia, G. L. | NGT 47-003-028 | 3618 |
| 49 | OLD DOMINION UNIV | Carter, C. H. | HQ-P | Goglia, G. L. | NGT 47-003-029 | 3619 |
| 49 | PENN STATE U-UNIV PK | Stevens, N. J. | LERC | Robinson, J. W. | NSG 3097 | 3257 |

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| 49 | PRAIRIE VIEW A&M U | Pohly, J. G. | HQ-P | Greaux, A. E. | NGT 44-033-750 | 3379 |
| 49 | PRINCETON UNIVERSITY | Kelsall, T. N. | GSFC | Lowrance, J. L. | NSG 5063 | 2786 |
| 49 | PRINCETON UNIVERSITY | Hohl, F. | LARC | Stoescu, M. L. | NSG 1129 | 2780 |
| 49 | PURDUE UNIVERSITY | Gregory, T. J. | ARC | Anderson, D. C. | NGR 15-005-180 | 2130 |
| 49 | PURDUE UNIVERSITY | Pritchard, J. A. | GSFC | Phillips, T. L. | NAS 5-20922 | 2115 |
| 49 | RENSSELAER POLY-NY | Tarver, P. | HQ-SL | Yerazunis, S. W. | NGL 33-018-091 | 2977 |
| 49 | RUTGERS U-N BRUNSWK | Doolin, B. F. | ARC | Hermann, R. | NSG 2148 | 2792 |
| 49 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Myronuk, D. J. | NCA 2-675601 | 1308 |
| 49 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Myronuk, D. J. | NCA 2-675611 | 1316 |
| 49 | SAN JOSE STATE UNIV | Mansfield, J. A. | ARC | Sharfstein, H. | NCA 2-675616 | 1321 |
| 49 | SO UNIV-BATON ROUGE | Pohly, J. G. | HQ-P | Burrell, M. Q. | NGT 19-005-750 | 2252 |
| 49 | STANFORD UNIVERSITY | Lumb, D. R. | ARC | Peterson, A. M. | NCA 2-745614 | 1379 |
| 49 | STANFORD UNIVERSITY | Doolin, B. F. | ARC | Bryson, A. E. | NGL 05-020-007 | 1380 |
| 49 | STANFORD UNIVERSITY | Jones, J. L. | ARC | Thompson, D. A. | NGR 05-020-345 | 1396 |
| 49 | STANFORD UNIVERSITY | Billingham, J. | ARC | Peterson, A. M. | NSG 2121 | 1430 |
| 49 | STANFORD UNIVERSITY | Keating, G. M. | LARC | Debra, D. B. | NSG 1210 | 1418 |
| 49 | STANFORD UNIVERSITY | Carter, C. H. | HQ-P | Adams, J. L. | NGT 05-020-409 | 1415 |
| 49 | STANFORD UNIVERSITY | Carter, C. H. | HQ-P | Bershafer, D. | NGT 05-020-412 | 1416 |
| 49 | TENNESSEE STATE UNIV | Pohly, J. G. | HQ-P | Clark, Y. Y. | NGT 43-014-750 | 3322 |
| 49 | TEXAS A&I UNIVERSITY | Pohly, J. G. | HQ-P | Franke, E. A. | NGT 44-073-750 | 3403 |
| 49 | TEXAS A&M UNIVERSITY | Nitschke, H. A. | JSC | Schell, J. A. | NAS 9-14493 | 3423 |
| 49 | TEXAS A&M UNIVERSITY | Nitschke, H. A. | JSC | Schell, J. A. | NAS 9-14821 | 3427 |
| 49 | TUSKEGEE INSTITUTE | Pohly, J. G. | HQ-P | Dybczak, Z. W. | NGT 01-005-750 | 1037 |
| 49 | UNIV ALA-HUNTSVILLE | Carter, C. H. | HQ-P | Head, R. R. | NGT 01-008-021 | 1067 |
| 49 | UNIV ALA-TUSCALOOSA | Morton, R. R. | MSFC | April, G. C. | NAS 8-29100 | 1072 |
| 49 | UNIV ALA-TUSCALOOSA | Carter, C. H. | HQ-P | Barfield, B. F. | NGT 01-002-080 | 1081 |
| 49 | UNIV OF ARIZONA | Zill, L. P. | ARC | Thompson, R. I. | NCA 2-40504 | 1117 |
| 49 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Bhattacharyya, B. K. | NCA 2-50504 | 1458 |
| 49 | UNIV CALIF-BERKELEY | Chang, T. C. | GSFC | Angelakos, D. J. | NSG 5093 | 1505 |
| 49 | UNIV CALIF-L ANGELES | Seltzer, S. M. | MSFC | Likins, P. W. | NAS 8-28358 | 1543 |
| 49 | UNIV CALIF-SAN DIEGO | Schaefer, D. H. | GSFC | Lee, S. H. | NGR 05-009-264 | 1633 |
| 49 | UNIV OF CINCINNATI | Mikulas, M. M., Jr. | LARC | Nayfeh, A. H. | NSG 1185 | 3140 |
| 49 | UNIV OF CONNECTICUT | Mayes, W. H. | LARC | Cooker, H. S. | NSG 1082 | 1819 |
| 49 | UNIV OF FLORIDA | Heath, D. F. | GSFC | Green, A. E. | NAS 5-22908 | 1916 |
| 49 | UNIV HOUSTON-HOUSTON | Satterfield, J. M. | JSC | Hayre, H. S. | NAS 9-11845 | 3447 |
| 49 | UNIV HOUSTON-HOUSTON | Eandi, B. K. | JSC | Huang, C. J. | NGL 44-005-090 | 3464 |
| 49 | UNIV ILLINOIS-URBANA | Siewert, R. D. | LERC | Strehlow, R. A. | NSG 3056 | 2093 |
| 49 | UNIV OF KANSAS | Horton, V. W. | DFRC | Muirhead, V. U. | NSG 4004 | 2210 |
| 49 | UNIV OF KANSAS | Saltzman, E. J. | DFRC | Muirhead, V. U. | NSG 4009 | 2214 |
| 49 | UNIV MARYLAND-COL PK | Degnan, J. J. | GSFC | Hochuli, U. E. | NSG 5042 | 2351 |
| 49 | UNIV MARYLAND-COL PK | Carter, C. H. | HQ-P | Emad, F. P. | NGT 21-002-254 | 2342 |
| 49 | U MINN-MNPLS-ST PAUL | Sizemore, K. O. | GSFC | Cahill, L. J., Jr. | NAS 5-11173 | 2619 |
| 49 | U MINN-MNPLS-ST PAUL | Wainscott, F. H. | GSFC | Winckler, J. R. | NAS 5-11687 | 2622 |
| 49 | UNIV NEBRASKA-LINCLN | Szajna, E. F. | GSFC | Carlson, M. P. | NAS 5-20814 | 2721 |
| 49 | UNIV OF NEW MEXICO | Hyland, R. F. | LERC | Long, W. W. | NAS 3-18522 | 2815 |
| 49 | UNIV OF NEW MEXICO | Hyland, R. F. | LERC | Burch, E. | NAS 3-19434 | 2816 |
| 49 | UNIV OF NEW MEXICO | Pohly, J. G. | HQ-P | Theye, L. A. | NGT 32-004-750 | 2837 |
| 49 | UNIV OKLAHOMA-NORMAN | Pohly, J. G. | HQ-P | Thomas, G. | NGT 37-003-760 | 3175 |
| 49 | UNIV OF PERU | Christie, C. J. | GSFC | Unavailable | NASW 7 | 3825 |
| 49 | UNIV OF RHODE ISLAND | Suttles, J. T. | LARC | Spaulding, M. L. | NSG 1008 | 3302 |
| 49 | UNIV OF ROME | Goozh, P. E. | HQ-MV | Unavailable | NASW 1761 | 3823 |
| 49 | UNIV OF SANTA CLARA | Doolin, B. F. | ARC | Siljak, D. D. | NGR 05-017-010 | 1692 |
| 49 | UNIV OF SANTA CLARA | Seltzer, S. M. | MSFC | Siljak, D. D. | NAS 8-27799 | 1674 |
| 49 | UNIV TENNESSEE-KNOXV | Velez, C. E. | GSFC | Feagin, T. | NSG 5040 | 3348 |
| 49 | UNIV TEXAS-AUSTIN | Fuchs, A. J. | GSFC | Tapley, B. D. | NAS 5-20946 | 3479 |
| 49 | UNIV TEXAS-AUSTIN | Fuchs, A. J. | GSFC | Tapley, B. D. | NGR 44-012-269 | 3505 |
| 49 | UNIV TEXAS-AUSTIN | Richard, R. R. | JSC | Hartwig, W. H. | NAS 9-14491 | 3488 |
| 49 | UNIV TEXAS-AUSTIN | Eandi, B. K. | JSC | McKetta, J. J. | NGL 44-012-133 | 3494 |

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| 49 | UNIV TEXAS-AUSTIN | Fralich, R. W. | LERC | Craig, R. R. | NSG 1268 | 3509 |
| 49 | UNIV TEXAS-EL PASO | Pohly, J. G. | HQ-P | Guard, R. W. | NGT 44-085-750 | 3543 |
| 49 | UNIV OF TOLEDO | Ramler, J. R. | LERC | Leininger, G. G. | NAS 3-17826 | 3151 |
| 49 | UNIV OF TOLEDO | Willoh, R. G. | LERC | Leininger, G. G. | NGR 36-010-024 | 3153 |
| 49 | UNIV OF VIRGINIA | Hueschen, R. M. | LARC | Cook, G. | NSG 1101 | 3678 |
| 49 | UNIV OF VIRGINIA | Snyder, W. J. | LARC | Jacobson, I. D. | NSG 1274 | 3684 |
| 49 | UNIV WISC-MADISON | Oberright, J. E. | GSFC | Dombrowski, R. M. | NAS 5-20068 | 3775 |
| 49 | VIRGINIA POLY INST | Day, J. L. | JSC | Rivers, D. B. | NAS 9-14862 | 3696 |
| 49 | VIRGINIA POLY INST | Martin, D. J. | LARC | Robertson, R. M. | NAS 1-13175 | 3690 |
| 49 | VIRGINIA POLY INST | Davis, J. G., Jr. | LARC | Herakovich, C. T. | NGR 47-004-129 | 3704 |
| 49 | VIRGINIA POLY INST | Wichorek, G. R. | LARC | Henneke, E. G. | NSG 1238 | 3720 |
| 49 | VIRGINIA POLY INST | Davis, J. G., Jr. | LARC | Herakovich, C. T. | NSG 1250 | 3722 |
| 49 | VIRGINIA POLY INST | Miserentino, R. | LARC | Hallauer, W. L., Jr. | NSG 1276 | 3727 |
| 49 | VIRGINIA POLY INST | Baumeister, K. J. | LERC | Robertson, R. A. | NAS 3-18553 | 3692 |
| 49 | WEST VIRGINIA UNIV | Phillips, B. | LERC | Wen, C. Y. | NAS 3-19725 | 3767 |
| 49 | YOUNGSTOWN STATE U | Hueschen, R. M. | LARC | Foulkes, R. H., Jr. | NSG 1199 | 3165 |
| 51 | ALABAMA A&M UNIV | Downs, S. W., Jr. | MSFC | Sharma, G. C. | NGR 01-001-023 | 1002 |
| 51 | ALCON STATE UNIV | Wolverton, B. C. | NSTL | Latif, A. | NSG 8036 | 2652 |
| 51 | AUBURN UNIV-AUBURN | Downs, S. W., Jr. | MSFC | Hagler, T. B. | NAS 8-29856 | 1018 |
| 51 | BAYLOR COL OF MED | Homick, J. L. | JSC | Igarashi, M. | NAS 9-14546 | 3366 |
| 51 | BAYLOR COL OF MED | Morrison, D. R. | JSC | Twomey, J. J. | NAS 9-14820 | 3370 |
| 51 | BISHOP COLLEGE | Danellis, J. V. | ARC | Kutsky, R. J. | NGR 44-032-013 | 3372 |
| 51 | BOWLING GRN STATE U | Miquel, J. | ARC | Oster, I. I. | NGR 36-017-004 | 3077 |
| 51 | BROOKLYN COLLEGE | Miquel, J. | ARC | Cottrell, S. F. | NCA 2-75602 | 2845 |
| 51 | BRYN MAWR COLLEGE | Hoffman, R. A. | JSC | Oppenheimer, J. M. | NAS 9-14640 | 3195 |
| 51 | CALIF INST OF TECH | Williams, T. S., Jr. | LARC | Horowitz, N. H. | NAS 1-12311 | 1187 |
| 51 | CALIF INST OF TECH | Young, R. S. | HQ-SB | Horowitz, N. H. | NGR 05-002-121 | 1216 |
| 51 | CAL STATE U-CHICO | Sanesta, P. D. | ARC | Burleigh, J. R. | NCA 2-110602 | 1254 |
| 51 | CAL STATE U-FULLERTN | Zill, L. P. | ARC | Esser, A. E. | NCA 2-253601 | 1256 |
| 51 | CAL STATE U-HAYWARD | Zill, L. P. | ARC | Smith, P. | NCA 2-290602 | 1261 |
| 51 | CATHOLIC UNIVERSITY | Saunders, J. F. | HQ-SB | Decicco, B. T. | NGR 09-005-022 | 1836 |
| 51 | CENTRAL ST UNIV-OHIO | Winget, C. M. | ARC | Nduaguba, J. C. | NSG 2074 | 3104 |
| 51 | CENTRAL ST UNIV-OHIO | Raquet, C. A. | LERC | Rubin, D. | NGR 36-033-002 | 3102 |
| 51 | CENTRAL ST UNIV-OHIO | Fordyce, J. S. | LERC | Craft, T. J., Sr. | NGR 36-033-003 | 3103 |
| 51 | COLLEGE OF WM & MARY | Hoffman, R. A. | JSC | Aceto, H., Jr. | NGR 47-006-054 | 3585 |
| 51 | COLORADO STATE UNIV | Holton, E. M. | ARC | Jordan, J. P. | NGR 06-002-075 | 1738 |
| 51 | COLORADO STATE UNIV | Hoffman, R. A. | JSC | Lett, J. T. | NGR 06-002-128 | 1744 |
| 51 | CORNELL UNIVERSITY | Tremor, J. W. | ARC | Steward, F. C. | NAS 2-7846 | 2900 |
| 51 | CORNELL UNIVERSITY | Young, R. S. | HQ-SB | MacDonald, R. E. | NSG 7235 | 2936 |
| 51 | EMORY UNIVERSITY | Holton, E. M. | ARC | Popovic, V. P. | NGL 11-001-009 | 1954 |
| 51 | EMORY UNIVERSITY | Sandler, H. | ARC | Bourne, G. H. | NGR 11-001-016 | 1956 |
| 51 | FLORIDA STATE UNIV | Young, R. S. | HQ-SB | Larock, P. A. | NGR 10-004-041 | 1908 |
| 51 | GEORGIA INST OF TECH | Williams, T. S., Jr. | LARC | Hubbard, J. S. | NAS 1-13422 | 1959 |
| 51 | GEORGIA INST OF TECH | Young, R. S. | HQ-SB | Hubbard, J. S. | NSG 7069 | 1998 |
| 51 | HARDIN-SIMMONS UNIV | Hall, L. B. | HQ-SB | Foster, T. L. | NGR 44-095-001 | 3373 |
| 51 | HARVARD UNIVERSITY | Ellis, S. | ARC | Goldberg, A. L. | NSG 2144 | 2407 |
| 51 | HOWARD UNIVERSITY | Picciolo, G. L. | GSFC | Okrend, H. H. | NSG 5104 | 1892 |
| 51 | INDIANA U-BLOOMINGTN | Weisoman, N. W. | ARC | Neff, W. D. | NGR 15-003-007 | 2109 |
| 51 | INDIANA U-INDIANAPLS | Haymaker, W. E. | ARC | Zeman, W. | NAS 2-7927 | 2112 |
| 51 | MASS INST OF TECH | Daunton, N. G. | ARC | Bizzi, E. | NGR 22-009-798 | 2484 |
| 51 | MASS INST OF TECH | Daunton, N. G. | ARC | Nauta, W. J. | NGR 22-009-826 | 2488 |
| 51 | MASS INST OF TECH | Williams, T. S., Jr. | LARC | Rich, A. | NAS 1-9691 | 2415 |
| 51 | MASS INST OF TECH | Young, R. S. | HQ-SB | Biemann, K. | NGR 22-009-005 | 2457 |
| 51 | MISS VALLEY ST UNIV | Wolverton, B. C. | MSFC | Sethi, S. L. | NSG 8009 | 2678 |
| 51 | NORTH GEORGIA COL | Downs, S. W., Jr. | MSFC | Biesbrock, J. A. | NAS 8-30619 | 2009 |
| 51 | OREGON STATE UNIV | Nachtwey, D. S. | JSC | Van Dyke, H. | NAS 9-14860 | 3181 |
| 51 | PENN STATE U-UNIV PK | Young, R. S. | HQ-SB | Casida, L. E., Jr. | NGR 39-009-180 | 3244 |
| 51 | RENSSELAER POLY-NY | Young, R. S. | HQ-SB | Wedler, F. C. | NSG 7065 | 2985 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 51 | RICE UNIVERSITY | Zieglschmid, J. F. | JSC | Ward, C. H. | NAS 9-12912 | 3389 |
| 51 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Auleb, L. | NCA 2-660506 | 1282 |
| 51 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Orenberg, J. B. | NCA 2-660602 | 1284 |
| 51 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Haight, R. D. | NCA 2-675506 | 1298 |
| 51 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Young, W. | NCA 2-675521 | 1307 |
| 51 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Ballard, R. | NCA 2-675603 | 1310 |
| 51 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Theng, R. | NCA 2-675610 | 1315 |
| 51 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Sawrey, J. M. | NCA 2-675615 | 1320 |
| 51 | SAN JOSE STATE UNIV | Klein, H. P. | ARC | Neptune, J. A. | NSG 2090 | 1327 |
| 51 | SOUTHEASTN OKLA ST U | Bostwick, L. G. | KSC | Robinson, J. L. | NSG 802 | 3172 |
| 51 | SO ILL UNIV-CARBONDL | Young, R. S. | HQ-SB | Yopp, J. H. | NGR 14-008-026 | 2050 |
| 51 | STANFORD UNIVERSITY | Miquel, J. | ARC | Bensch, K. G. | NAS 2-6706 | 1335 |
| 51 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Berger, P. A. | NCA 2-745521 | 1369 |
| 51 | STANFORD UNIVERSITY | Williams, T. S., Jr. | LARC | Lederberg, J. | NAS 1-9692 | 1333 |
| 51 | STANFORD UNIVERSITY | Young, R. S. | HQ-SB | Lederberg, J. | NGR 05-020-004 | 1394 |
| 51 | STATE UNIV NY-ALBANY | Rummel, J. A. | JSC | Farhi, L. E. | NSG 9028 | 2997 |
| 51 | STATE UNIV NY-BUFFAL | Allen, R. E. | MSFC | Bigazzi, P. E. | NAS 8-31292 | 2998 |
| 51 | STATE U NY-STONY BRK | Tremor, J. W. | ARC | Steward, F. C. | NAS 2-8986 | 3005 |
| 51 | TEMPLE UNIVERSITY | Nachtwey, D. S. | JSC | Urback, F. | NAS 9-14979 | 3262 |
| 51 | TEXAS TECH UNIV | Holton, E. M. | ARC | Kenny, A. D. | NSG 2137 | 3443 |
| 51 | TULANE UNIVERSITY | Zill, L. P. | ARC | Brizze, K. R. | NCA 2-800402 | 2259 |
| 51 | UNIV ALA-HUNTSVILLE | Morton, R. R. | MSFC | Rossing, L. M. | NAS 8-30772 | 1051 |
| 51 | UNIV OF ARIZONA | Harwell, R. J. | MSFC | Bartels, P. H. | NAS 8-31948 | 1112 |
| 51 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Nicoll, C. S. | NCA 2-50509 | 1460 |
| 51 | UNIV CALIF-BERKELEY | Lanyi, J. K. | ARC | Packer, L. | NCA 2-50607 | 1465 |
| 51 | UNIV CALIF-DAVIS | Taketa, S. T. | ARC | Mazelis, M. | NAS 2-8685 | 1511 |
| 51 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | Evans, J. W. | NCA 2-180505 | 1520 |
| 51 | UNIV CALIF-DAVIS | Oyama, J. | ARC | Smith, A. H. | NGL 05-004-008 | 1525 |
| 51 | UNIV CALIF-DAVIS | Holton, E. M. | ARC | Horowitz, J. M. | NGR 05-004-099 | 1527 |
| 51 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Parlow, A. | NCA 2-390601 | 1551 |
| 51 | UNIV CALIF-L ANGELES | Daunton, N. G. | ARC | Markham, C. H. | NGR 05-007-418 | 1576 |
| 51 | UNIV CALIF-SAN DIEGO | Young, R. S. | HQ-SB | Yayanos, A. A. | NGR 05-009-213 | 1626 |
| 51 | UNIV CALIF-SAN FRAN | Zill, L. P. | ARC | Degroot, J. | NCA 2-665301 | 1646 |
| 51 | UNIV CALIF-SAN FRAN | Zill, L. P. | ARC | Dallman, M. F. | NCA 2-665401 | 1647 |
| 51 | UNIV CALIF-SAN FRAN | Zill, L. P. | ARC | Aly, R. | NCA 2-665402 | 1648 |
| 51 | UNIV CALIF-SAN FRAN | Zill, L. P. | ARC | Dallman, M. F. | NCA 2-665502 | 1649 |
| 51 | UNIV CALIF-SAN FRAN | Zill, L. P. | ARC | Aly, R. | NCA 2-665601 | 1650 |
| 51 | UNIV CALIF-SAN FRAN | Danellis, J. V. | ARC | Dallman, M. F. | NCA 2-665602 | 1651 |
| 51 | UNIV CALIF-SAN FRAN | Young, R. S. | HQ-SB | Stoeckenius, W. | NSG 7151 | 1653 |
| 51 | UNIV CALIF-S BARBARA | Zill, L. P. | ARC | Rochelle, R. H. | NCA 2-680601 | 1655 |
| 51 | UNIV OF CHICAGO | Daunton, N. G. | ARC | Goldberg, J. M. | NGR 14-001-225 | 2069 |
| 51 | UNIV OF HAWAII-MANOA | Taketa, S. T. | ARC | Siegel, S. M. | NAS 2-8687 | 2018 |
| 51 | UNIV OF HAWAII-MANOA | Young, R. S. | HQ-SB | Siegel, S. M. | NGL 12-001-042 | 2025 |
| 51 | UNIV HOUSTON-HOUSTON | Ginoza, H. S. | ARC | Allred, J. C. | NAS 2-9072 | 3445 |
| 51 | UNIV HOUSTON-HOUSTON | Zill, L. P. | ARC | Bartel, A. H. | NCA 2-295503 | 3460 |
| 51 | UNIV HOUSTON-HOUSTON | Zill, L. P. | ARC | Becker, R. S. | NCA 2-295601 | 3461 |
| 51 | UNIV HOUSTON-HOUSTON | Hoffman, R. A. | JSC | Hanson, W. B. | NAS 9-13262 | 3449 |
| 51 | UNIV HOUSTON-HOUSTON | Graves, R. C. | JSC | Henney, H. R., Jr. | NAS 9-14857 | 3456 |
| 51 | UNIV HOUSTON-HOUSTON | Hoffman, R. A. | JSC | Coules, J. R. | NSG 9042 | 3474 |
| 51 | UNIV ILLINOIS-URBANA | Williams, B. A. | ARC | Heath, J. E. | NSG 2099 | 2089 |
| 51 | UNIV OF LOUISVILLE | Mehler, W. R. | ARC | Fuller, P. M. | NSG 2067 | 2236 |
| 51 | UNIV OF LOUISVILLE | Hoffman, R. A. | JSC | Keefe, J. R. | NAS 9-14632 | 2234 |
| 51 | U MINN-MNPLS-ST PAUL | Hall, L. B. | HQ-SB | Straub, C. P. | NGL 24-005-160 | 2629 |
| 51 | UNIV MO-COLUMBIA | Holton, E. M. | ARC | Musacchia, X. J. | NGL 26-004-021 | 2694 |
| 51 | UNIV OF NEW MEXICO | Zill, L. P. | ARC | Riedesel, M. L. | NCA 2-510502 | 2820 |
| 51 | UNIV ORGEON-HLTH CTR | Allen, R. E. | MSFC | Knox, R. J. | NAS 8-30887 | 3192 |
| 51 | UNIV ORGEON-HLTH CTR | Ives, R. E. | MSFC | Brooks, D. E. | NAS 8-31899 | 3194 |
| 51 | UNIV OF PENNSYLVANIA | Zill, L. P. | ARC | Brown, A. H. | NAS 2-7730 | 3263 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 51 | UNIV OF PENNSYLVANIA | Zill, L. P. | ARC | Brown, A. H. | NGR 39-010-149 | 3266 |
| 51 | UNIV OF PENNSYLVANIA | Horrigan, D. J. | JSC | Lambertson, C. J. | NSG 9011 | 3270 |
| 51 | UNIV OF ROCHESTER | Young, R. S. | HQ-SB | Hempfling, W. P. | NGR 33-019-002 | 3036 |
| 51 | UNIV SAN FRANCISCO | Zill, L. P. | ARC | Furst, A. | NCA 2-670501 | 1668 |
| 51 | UNIV SAN FRANCISCO | Miquel, J. | ARC | Benton, E. V. | NSG 2063 | 1672 |
| 51 | UNIV SAN FRANCISCO | Bailey, J. V. | JSC | Benton, E. V. | NAS 9-12466 | 1666 |
| 51 | UNIV SAN FRANCISCO | Taylor, G. R. | JSC | Benton, E. V. | NAS 9-14396 | 1667 |
| 51 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Tomlinson, G. A. | NCA 2-685509 | 1683 |
| 51 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Sweeney, M. A. | NCA 2-685603 | 1686 |
| 51 | UNIV SO CAROLINA-COL | Young, R. S. | HQ-SB | Rohlfing, D. L. | NSG 7096 | 3313 |
| 51 | UNIV SO MISSISSIPPI | Stocks, P. | NSTL | Wolverton, V. C. | NAS13-23 | 2680 |
| 51 | UNIV OF UTAH | Zill, L. P. | ARC | Smith, L. M. | NCA 2-821601 | 3564 |
| 51 | UNIV OF VIRGINIA | Mehler, W. R. | ARC | Ebbesson, S. O. | NGR 47-005-186 | 3672 |
| 51 | UNIV OF VIRGINIA | Oyama, J. | ARC | Pitts, G. C. | NGR 47-005-213 | 3675 |
| 51 | UNIV OF WASHINGTON | Geib, D. S. | HQ-SB | Gordon, M. P. | NGR 48-002-130 | 3751 |
| 51 | UNIV WISC-MADISON | Taketa, S. T. | ARC | Tibbetts, T. W. | NAS 2-7314 | 3772 |
| 51 | UTAH STATE UNIV | Nachtwey, D. S. | JSC | Caldwell, M. M. | NAS 9-14871 | 3574 |
| 51 | VASSAR COLLEGE | Zill, L. P. | ARC | Christensen, C. | NCA 2-823501 | 3040 |
| 51 | VIRGINIA COMNWLTH U | Wilkins, J. R. | LARC | Dalton, H. P. | NGL 47-002-020 | 3686 |
| 51 | VIRGINIA COMNWLTH U | Saunders, J. F. | HQ-SB | Ham, W. T. | NGL 47-002-005 | 3685 |
| 51 | WASHINGTON UNIVERSTY | Hoffman, R. A. | JSC | Pickard, B. G. | NSG 9035 | 2718 |
| 51 | WORCESTER POLY INST | Young, R. S. | HQ-SB | Danielli, J. F. | NSG 7154 | 2542 |
| 51 | XAVIER UNIV-LA | Winget, C. M. | ARC | Ashman, P. U. | NGR 19-007-004 | 2266 |
| 51 | YALE UNIVERSITY | Young, R. S. | HQ-SB | Morowitz, H. J. | NGR 07-004-009 | 1826 |
| 51 | OREGON GRADUATE CTR | Zill, L. P. | ARC | Swanson, L. W. | NCA 2-585501 | 3177 |
| 51 | OREGON GRADUATE CTR | Zill, L. P. | ARC | Swanson, L. W. | NCA 2-585601 | 3178 |
| 52 | BAYLOR COL OF MED | Leach, C. S. | JSC | Campbell, B. O. | NAS 9-10537 | 3356 |
| 52 | BAYLOR COL OF MED | Kimzey, S. L. | JSC | Criswell, B. S. | NAS 9-14322 | 3361 |
| 52 | BAYLOR COL OF MED | Kaplan, H. L. | JSC | Duncan, W. C. | NAS 9-14407 | 3364 |
| 52 | BAYLOR COL OF MED | Kimzey, S. L. | JSC | Johnson, P. C. | NAS 9-14662 | 3368 |
| 52 | BOSTON UNIVERSITY | Arnoldi, L. B. | HQ-QG | Hershberg, P. I. | NSG 7063 | 2377 |
| 52 | FEDERAL CITY COLLEGE | Alterescu, S. | GSFC | Friedman, C. | NGR 09-050-013 | 1850 |
| 52 | GALLAUDET COLLEGE | Chen, W. T. | GSFC | Tobin, H. | NSG 5019 | 1854 |
| 52 | HARVARD UNIVERSITY | Young, D. R. | ARC | Tashjian, A. H., Jr. | NGR 22-007-256 | 2398 |
| 52 | HOWARD UNIVERSITY | Chen, W. T. | GSFC | Fischmann, E. J. | NGR 09-011-055 | 1882 |
| 52 | INDIANA U-BLOOMINGTN | Vinograd, S. P. | HQ-SB | Maickel, R. P. | NGL 15-003-117 | 2108 |
| 52 | LINCOLN UNIV-PA | Alterescu, S. | GSFC | Frankowsky, J. W. | NSG 5008 | 3226 |
| 52 | MOREHOUSE COLLEGE | Alterescu, S. | GSFC | Norris, T. E. | NAS 5-23571 | 2001 |
| 52 | OHIO STATE UNIV | Carter, C. H. | HQ-P | Ellingson, H. V. | NGT 36-008-007 | 3126 |
| 52 | STANFORD UNIVERSITY | Sandler, H. | ARC | Harrison, D. C. | NGL 05-020-305 | 1389 |
| 52 | STANFORD UNIVERSITY | Danellis, J. V. | ARC | Luetscher, J. A. | NGR 05-020-456 | 1401 |
| 52 | STANFORD UNIVERSITY | Sandler, H. | ARC | Harrison, D. C. | NGR 05-020-634 | 1407 |
| 52 | STANFORD UNIVERSITY | Sandler, H. | ARC | Popp, R. | NSG 2020 | 1420 |
| 52 | STANFORD UNIVERSITY | Sandler, H. | ARC | Harrison, D. C. | NSG 2132 | 1431 |
| 52 | STANFORD UNIVERSITY | Dolkas, C. B. | ARC | Olefsky, J. M. | NSG 2141 | 1432 |
| 52 | ST U NY-DNST MED CTR | Chen, W. T. | GSFC | Fealey, R. D. | NAS 5-22277 | 3027 |
| 52 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | Bernauer, E. M. | NCA 2-180601 | 1522 |
| 52 | UNIV CALIF-DAVIS | Smith, M. C., Jr. | JSC | Vogel, J. M. | NAS 9-13589 | 1514 |
| 52 | UNIV CALIF-IRVINE | Mandel, A. D. | ARC | Tilles, J. G. | NGR 05-041-012 | 1529 |
| 52 | UNIV CALIF-SAN DIEGO | Sandler, H. | ARC | Baily, N. A. | NGR 05-009-257 | 1631 |
| 52 | UNIV HOUSTON-HOUSTON | Schneider, H. J. | JSC | Zlatkis, A. | NAS 9-14629 | 3454 |
| 52 | UNIV OF MIAMI | Leach, C. S. | JSC | Epstein, M. | NGR 10-007-097 | 1943 |
| 52 | UNIV SAN FRANCISCO | Zill, L. P. | ARC | Furst, A. | NCA 2-670503 | 1669 |
| 52 | UNIV TEXAS-GALVESTON | Sandler, H. | ARC | Stone, H. L. | NGR 44-088-002 | 3546 |
| 52 | U TEX HEALTH CTR-DAL | Hoffler, G. W. | JSC | Blomquist, C. G. | NSG 9026 | 3547 |
| 52 | UNIV OF VIRGINIA | Zill, L. P. | ARC | Updike, O. L. | NCA 2-825501 | 3667 |
| 52 | UNIV WISC-MADISON | Young, D. R. | ARC | Cameron, J. R. | NGR 50-002-051 | 3792 |
| 52 | UNIV WISC-MADISON | Mandel, A. D. | ARC | Balish, E. | NGR 50-002-191 | 3795 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 52 | UNIV WISC-MADISON | Mandel, A. D. | ARC | Dick, E. C. | NSG 2002 | 3799 |
| 52 | UNIV WISC-MADISON | Mandel, A. D. | ARC | Dick, E. | NSG 2104 | 3800 |
| 53 | BAYLOR COL OF MED | Shumate, W. H. | JSC | Roessler, R. | NAS 9-13452 | 3358 |
| 53 | BAYLOR COL OF MED | Smith, M. C., Jr. | JSC | Johnson, P. C. | NAS 9-13737 | 3360 |
| 53 | BAYLOR COL OF MED | Kimzey, S. L. | JSC | Rich, R. R. | NAS 9-14368 | 3362 |
| 53 | BAYLOR COL OF MED | Kimzey, S. L. | JSC | Martin, R. R. | NAS 9-14406 | 3363 |
| 53 | BAYLOR COL OF MED | Kimzey, S. L. | JSC | Criswell, B. S. | NAS 9-14468 | 3365 |
| 53 | BAYLOR COL OF MED | Kimzey, S. L. | JSC | Gentry, L. O. | NAS 9-14603 | 3367 |
| 53 | BAYLOR COL OF MED | Hoffler, G. W. | JSC | Alexander, J. K. | NAS 9-15046 | 3371 |
| 53 | COLUMBIA UNIVERSITY | Rambaut, P. C. | JSC | Bassett, C. A. | NAS 9-14931 | 2874 |
| 53 | CORNELL UNIV-MED CTR | Sandler, H. | ARC | Reis, D. J. | NGR 33-010-179 | 2939 |
| 53 | HARDING COLLEGE | Rummel, J. A. | JSC | Olree, H. D. | NAS 9-14921 | 1173 |
| 53 | HOWARD UNIVERSITY | Sandler, H. | ARC | Hawthorne, E. W. | NGL 09-011-017 | 1879 |
| 53 | HOWARD UNIVERSITY | Alterescu, S. | GSFC | Shepard, J. | NSG 5016 | 1888 |
| 53 | HOWARD UNIVERSITY | Alterescu, S. | GSFC | Deloatch, E. M. | NSG 5081 | 1891 |
| 53 | MASS INST OF TECH | Winget, C. M. | ARC | Wurtman, R. J. | NGR 22-009-627 | 2468 |
| 53 | MASS INST OF TECH | Heidelbaugh, N. D. | JSC | Flink, J. M. | NAS 9-12485 | 2441 |
| 53 | PENN STATE U-UNIV PK | Keil, L. C. | ARC | Severs, W. B. | NSG 2122 | 3252 |
| 53 | RICE UNIVERSITY | Taketa, S. T. | ARC | Ward, C. H. | NAS 2-8676 | 3381 |
| 53 | ST LOUIS UNIVERSITY | Greenleaf, J. E. | ARC | Van Beaumont, W. | NGR 26-006-039 | 2685 |
| 53 | ST LOUIS UNIVERSITY | Anliker, J. E. | ARC | Van Beaumont, W. | NSG 2023 | 2687 |
| 53 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Sawrey, J. M. | NCA 2-675511 | 1300 |
| 53 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Tseng, R. | NCA 2-675515 | 1304 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Pribram, K. H. | NCA 2-745414 | 1350 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Atkinson, R. C. | NCA 2-745418 | 1351 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Barchas, J. D. | NCA 2-745503 | 1353 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Steele, C. R. | NCA 2-745504 | 1354 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Mathers, L. | NCA 2-745508 | 1356 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Reaven, G. M. | NCA 2-745509 | 1357 |
| 53 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Pribram, K. H. | NCA 2-745516 | 1364 |
| 53 | STANFORD UNIVERSITY | Sandler, H. | ARC | Beaver, W. L. | NGR 05-020-615 | 1404 |
| 53 | STANFORD UNIVERSITY | Sandler, H. | ARC | Angell, J. | NGR 05-020-690 | 1412 |
| 53 | STANFORD UNIVERSITY | Young, D. R. | ARC | Steele, C. R. | NSG 2092 | 1427 |
| 53 | STANFORD UNIVERSITY | Rummel, J. A. | JSC | Lederberg, J. | NGR 05-020-632 | 1406 |
| 53 | TEXAS TECH UNIV | Day, J. L. | JSC | Portnoy, W. M. | NAS 9-14438 | 3442 |
| 53 | TUFTS UNIVERSITY | Jackson, M. M. | JSC | Spodick, D. H. | NGR 22-012-026 | 2531 |
| 53 | TULANE UNIVERSITY | Zill, L. P. | ARC | Brizzee, K. R. | NCA 2-800501 | 2260 |
| 53 | TULANE UNIVERSITY | Mehler, W. R. | ARC | Brizzee, K. R. | NSG 2139 | 2264 |
| 53 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | Baldwin, R. L. | NCA 2-180501 | 1516 |
| 53 | UNIV CALIF-L ANGELES | Zill, L. P. | ARC | Parlow, A. | NCA 2-390502 | 1549 |
| 53 | UNIV CALIF-SAN DIEGO | Billingham, J. | ARC | West, J. B. | NGL 05-009-109 | 1612 |
| 53 | UNIV HOUSTON-HOUSTON | Schneider, H. J. | JSC | Zlatkis, A. | NAS 9-14534 | 3453 |
| 53 | UNIV ILLINOIS-URBANA | Mehler, W. R. | ARC | Ades, H. W. | NGR 14-005-221 | 2085 |
| 53 | UNIV MARYLAND-BALT | Sharp, J. C. | ARC | Grenell, R. G. | NSG 2098 | 2298 |
| 53 | UNIV SAN FRANCISCO | Zill, L. P. | ARC | Furst, A. | NCA 2-670504 | 1670 |
| 53 | UNIV TEXAS-GALVESTON | Kimzey, S. L. | JSC | Lockhart, L. H. | NAS 9-13102 | 3544 |
| 53 | U TEX HEALTH CTR-SA | Hoffler, G. W. | JSC | Earley, L. E. | NGR 44-094-003 | 3548 |
| 53 | UNIV OF TORONTO | Halstead, T. W. | HQ-SB | Johnson, W. H. | NSG 7079 | 3815 |
| 53 | UNIV OF WASHINGTON | Holton, E. M. | ARC | Baylink, D. J. | NAS 2-8541 | 3737 |
| 53 | UNIV WISC-MADISON | Friedman, D. S. | GSFC | Houston, N. | NAS 5-23500 | 3784 |
| 53 | UPPSALA UNIVERSITY | Kimball, W. L. | ARC | Engstrom, H. | NGR 52-028-004 | 3826 |
| 53 | WAYNE STATE UNIV | Young, D. R. | ARC | Orne, D. | NSG 2008 | 2609 |
| 53 | WRIGHT STATE UNIV | Winget, C. M. | ARC | Beljan, J. R. | NAS 2-8578 | 3163 |
| 53 | WRIGHT STATE UNIV | Young, D. R. | ARC | Beljan, J. R. | NSG 2034 | 3164 |
| 59 | ALABAMA A&M UNIV | Pohly, J. G. | HQ-P | Lee, C. O. | NGR 01-001-003 | 1001 |
| 59 | BAYLOR COL OF MED | Leach, C. S. | JSC | Johnson, P. C. | NAS 9-11201 | 3357 |
| 59 | BAYLOR COL OF MED | Leach, C. S. | JSC | Di Ferrante, N. | NAS 9-13540 | 3359 |
| 59 | BAYLOR COL OF MED | Leach, C. S. | JSC | Suki, W. N. | NAS 9-14715 | 3369 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 59 | BOSTON UNIVERSITY | Larson, C. A. | HQ-SB | Fulton, G. P. | NGR 22-004-018 | 2373 |
| 59 | CALIF INST OF TECH | Chang, S. | ARC | Horowitz, N. H. | NGR 05-002-308 | 1226 |
| 59 | CASE WESTERN RESERVE | Fryer, T. B. | ARC | Ko, W. H. | NGR 36-027-058 | 3085 |
| 59 | CLARKSON COL OF TECH | Halstead, T. W. | HQ-SB | McNulty, P. J. | NSG 7170 | 2862 |
| 59 | COLLEGE OF WM & MARY | Jones, W. L. | HQ-SB | Aceto, H., Jr. | NSG 7073 | 3590 |
| 59 | COLORADO STATE UNIV | Tremor, J. W. | ARC | Baker, R. | NAS 2-6615 | 1722 |
| 59 | EMORY UNIVERSITY | Daunton, N. G. | ARC | Perachio, A. A. | NGR 11-001-045 | 1957 |
| 59 | FLORIDA A&M UNIV | Winget, C. M. | ARC | Walker, C. A. | NSG 2029 | 1901 |
| 59 | FLORIDA A&M UNIV | Winget, C. M. | ARC | Lamba, S. S. | NSG 2103 | 1902 |
| 59 | FLORIDA A&M UNIV | Malone, J. E. | KSC | Harrell, B. E. | NSG 805 | 1899 |
| 59 | GEORGE WASHINGTON U | Baker, C. E. | LERC | Schiff, H. I. | NSR 09-010-027 | 1875 |
| 59 | GEORGE WASHINGTON U | Hall, L. B. | HQ-SB | Unavailable | NASW 2768 | 1856 |
| 59 | HAHNEMANN MED COL | Picciolo, G. L. | GSFC | Gutekunst, R. R. | NAS 5-20865 | 3210 |
| 59 | HOWARD UNIVERSITY | Pohly, J. G. | HQ-P | DeLoatch, E. M. | NGT 09-011-051 | 1884 |
| 59 | KENTUCKY STATE UNIV | Morrison, J. D. | KSC | Kloek, G. | NSG 801 | 2222 |
| 59 | LA STATE U-BAT ROUGE | Rusoff, L. L. | NSTL | Wolverton, V. C. | NAS13-38 | 2245 |
| 59 | MASS INST OF TECH | Daunton, N. G. | ARC | Young, L. R. | NSG 2032 | 2499 |
| 59 | MIAMI UNIVERSITY | Homick, J. L. | JSC | Parker, D. E. | NAS 9-14538 | 3108 |
| 59 | MISSISSIPPI STATE U | Unavailable | NSTL | Unavailable | NAS13-21 | 2666 |
| 59 | NORFOLK STATE COL | Dempsey, T. K. | LARC | Colegate, R. L. | NSG 1074 | 3603 |
| 59 | OHIO STATE UNIV | Mehler, W. R. | ARC | Lim, D. | NGR 36-008-211 | 3125 |
| 59 | PURDUE UNIVERSITY | Stonesifer, G. R. | GSFC | Bauer, M. E. | NAS 5-20793 | 2114 |
| 59 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Chealano, G. T. | NCA 2-660601 | 1283 |
| 59 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | West, M. W. | NCA 2-675304 | 1288 |
| 59 | SO UNIV-BATON ROUGE | Sandler, H. | ARC | Ray, G. | NSG 2041 | 2253 |
| 59 | STANFORD UNIVERSITY | Mehler, W. R. | ARC | Chow, K. L. | NGR 05-020-435 | 1399 |
| 59 | STANFORD UNIVERSITY | Leach, C. S. | JSC | Davidson, J. M. | NAS 9-14716 | 1348 |
| 59 | STANFORD UNIVERSITY | Young, R. S. | HQ-SB | Bonner, W. A. | NGL 05-020-582 | 1392 |
| 59 | ST U NY-UPST MED CTR | Leach, C. S. | JSC | Miller, M. | NAS 9-11846 | 3028 |
| 59 | TEXAS A&M UNIVERSITY | Stonesifer, G. R. | GSFC | Rouse, J. | NAS 5-20796 | 3405 |
| 59 | TEXAS A&M UNIVERSITY | Smith, M. C., Jr. | JSC | Burns, E. E. | NAS 9-12434 | 3417 |
| 59 | UNIV HOUSTON-CL LAKE | Barnes, C. M. | JSC | Schuhmann, R. E. | NAS 9-14874 | 3475 |
| 59 | UNIV OF ARIZONA | Kimsey, S. L. | JSC | Bartels, P. H. | NAS 9-14692 | 1113 |
| 59 | UNIV CALIF-BERKELEY | Quattrone, P. D. | ARC | Pace, N. | NGL 05-003-024 | 1468 |
| 59 | UNIV CALIF-BERKELEY | Newsom, B. D. | ARC | Pace, N. | NGR 05-003-470 | 1483 |
| 59 | UNIV CALIF-SAN DIEGO | Anliker, J. E. | ARC | Galambos, R. | NGR 05-009-198 | 1625 |
| 59 | UNIV CALIF-SAN FRAN | Zill, L. P. | ARC | Stoeckenius, W. | NGL 05-025-014 | 1652 |
| 59 | UNIV COLORADO-BOLDR | Szajna, E. F. | GSFC | Krebs, P. | NAS 5-20948 | 1761 |
| 59 | UNIV HOUSTON-HOUSTON | Smith, M. C., Jr. | JSC | Cox, J. E. | NAS 9-11676 | 3446 |
| 59 | UNIV HOUSTON-HOUSTON | Loper, L. R. | JSC | Pitts, D. G. | NAS 9-14384 | 3452 |
| 59 | UNIV MARYLAND-COL PK | MacElroy, R. D. | ARC | Ponnamperuma, C. A. | NSG 2109 | 2347 |
| 59 | U MINN-MNPLS-ST PAUL | Smith, M. C., Jr. | JSC | Labuza, T. P. | NAS 9-12560 | 2626 |
| 59 | UNIV MO-ROLLA | Quattrone, P. D. | ARC | Mills, J. B. | NGR 26-004-097 | 2702 |
| 59 | UNIV N CAR-CHPL HILL | Leach, C. S. | JSC | Gitelman, H. J. | NAS 9-14697 | 3075 |
| 59 | UNIV ORGEON-HLTH CTR | Harwell, R. J. | MSFC | Brooks, D. E. | NAS 8-31386 | 3193 |
| 59 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Pefley, R. K. | NCA 2-685501 | 1678 |
| 59 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Pefley, R. K. | NCA 2-685605 | 1687 |
| 59 | U TEX PUB HLTH-HUS | Vitale, J. A. | HQ-P | Rush, M. | NGL 44-084-003 | 3549 |
| 59 | UNIV OF UTAH | Kaplan, H. L. | JSC | Baldwin, R. C. | NAS 9-14809 | 3562 |
| 59 | UNIV OF WASHINGTON | Rambaut, P. C. | JSC | Nelp, W. B. | NAS 9-13029 | 3739 |
| 59 | UNIV WISC-MADISON | Zimmerman, R. R. | HQ-KT | Unavailable | NASW 2716 | 3787 |
| 59 | UNIV WISC-MADISON | O'Handley, D. A. | HQ-KT | Huston, N. | NASW 2819 | 3788 |
| 59 | VASSAR COLLEGE | Zill, L. P. | ARC | Christensen, C. | NCA 2-823601 | 3041 |
| 61 | CAL STATE U-HAYWARD | Zill, L. P. | ARC | Sieber, J. E. | NCA 2-290401 | 1258 |
| 61 | EMORY UNIVERSITY | Winter, D. L. | ARC | Perachio, A. A. | NGR 11-001-012 | 1955 |
| 61 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | Chapman, L. F. | NCA 2-180504 | 1519 |
| 61 | UNIV CALIF-DAVIS | Zill, L. P. | ARC | Bernauer, E. M. | NCA 2-180506 | 1521 |
| 61 | UNIV CALIF-SAN DIEGO | Winter, D. L. | ARC | Galambos, R. | NGR 05-009-083 | 1621 |

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|---------------|----------------------|----------------------|--------------------|---------------------------------|------------------------------|------------|
| 61 | UNIV MICH-ANN ARBOR | Simmonds, R. C. | ARC | Von Baumgarten A, R. J. | NAS 2-6057 | 2550 |
| 62 | JOHNS HOPKINS UNIV | Patton, R. M. | ARC | Brady, J. V. | NGR 21-001-111 | 2283 |
| 62 | WESTERN NEW MEXICO U | Bourke, R. D. | JPL | Lundahl, C. R. | NSG 902 | 2840 |
| 69 | COLUMBIA UNIVERSITY | Cawthorn, J. M. | LARC | Galanter, E. | NSG 1115 | 2886 |
| 69 | HAMPTON INSTITUTE | Catherines, J. J. | LARC | Duncan, N. C. | NSG 1011 | 3597 |
| 69 | MASS INST OF TECH | Daunton, N. G. | ARC | Teuber, H. L. | NGL 22-009-308 | 2451 |
| 69 | NO CAROLINA STATE U | Mayes, W. H. | LARC | Levere, T. E. | NGL 34-002-095 | 3060 |
| 69 | OHIO STATE UNIV | Lauber, J. K. | ARC | Gilson, R. D. | NAS 2-8954 | 3110 |
| 69 | OLD DOMINION UNIV | Dempsey, T. K. | LARC | Coates, G. D. | NSG 1225 | 3642 |
| 69 | OLD DOMINION UNIV | Dempsey, T. K. | LARC | Coates, G. D. | NSG 1247 | 3648 |
| 69 | SAN JOSE STATE UNIV | Stewart, J. D. | ARC | Clark, W. B. | NGL 05-046-002 | 1323 |
| 69 | UNIV ALA-HUNTSVILLE | Tanner, T. A. | ARC | Rogers, J. G. | NSG 2058 | 1068 |
| 69 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Haftner, E. R. | NCA 2-50508 | 1459 |
| 69 | UNIV OF FLORIDA | Anliker, J. E. | ARC | Webb, W. B. | NGR 10-005-057 | 1925 |
| 69 | UNIV OF LOUISVILLE | Mayes, W. H. | LARC | Loeb, M. | NSG 1220 | 2235 |
| 69 | UNIV OF ROCHESTER | Gainer, P. A. | LARC | Brown, J. L. | NSG 1211 | 3038 |
| 69 | UNIV TEXAS-AUSTIN | Tanner, T. A. | ARC | Helmreich, R. L. | NSG 2065 | 3510 |
| 69 | UNIV TEXAS-GALVESTON | Reschke, M. F. | JSC | Correia, M. J. | NAS 9-14641 | 3545 |
| 72 | AUBURN UNIV-AUBURN | McKannan, E. C. | MSFC | Vachon, R. I. | NAS 8-29881 | 1019 |
| 72 | BOSTON COLLEGE | Morse, S. | GSFC | Kelley, A. J. | NAS 5-22994 | 2371 |
| 72 | COLUMBIA UNIVERSITY. | Morris, J. D. | HQ-P | Ginzberg, E. | NGR 33-008-168 | 2877 |
| 72 | NEW YORK UNIVERSITY | Gray, E. Z. | HQ-K | Morgenstern, O. | NSG 7169 | 2958 |
| 72 | UNIV MARYLAND-COL PK | Alfonsi, P. J. | WFC | Harmon, D. M. | NSG 6010 | 2362 |
| 73 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Brown, D. E. | NCA 2-675401 | 1290 |
| 73 | UNIV OF DAYTON | Hein, G. F. | LERC | Engler, N. A. | NAS 3-19699 | 3147 |
| 73 | UNIV HOUSTON-HOUSTON | Wright, M. D. | HQ-AD | Unavailable | NASW 2691 | 3458 |
| 75 | BROOKLYN COLLEGE | Schnetzler, C. C. | GSFC | Weil, C. B. | NAS 5-20961 | 2844 |
| 75 | GEORGE WASHINGTON U | Wright, M. D. | HQ-AD | Logsdon, J. M. | NSG 7145 | 1874 |
| 75 | GEORGE WASHINGTON U | Hall, L. B. | HQ-SB | Unavailable | NASW 2890 | 1857 |
| 75 | PEPPERDINE UNIV-MLBU | Hornby, H. | ARC | Album, H. J. | NSG 2159 | 1270 |
| 75 | STANFORD UNIVERSITY | Barnett, R. M. | ARC | Pederson, C. A. | NAS 2-8898 | 1336 |
| 75 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Rosenberg, N. | NCA 2-745604 | 1373 |
| 75 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Buxbaum, R. M. | NCA 2-50502 | 1456 |
| 75 | UNIV CALIF-BERKELEY | Zill, L. P. | ARC | Laporte, T. | NCA 2-50603 | 1462 |
| 75 | UNIV OF DENVER | Ault, L. A. | HQ-KT | Unavailable | NASW 2607 | 1806 |
| 75 | UNIV OF NEW MEXICO | Morris, J. D. | HQ-P | Rosenthal, A. H. | NGL 32-004-042 | 2830 |
| 75 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Bruno, A. V. | NCA 2-685508 | 1682 |
| 75 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Alexander, G. J. | NCA 2-685510 | 1684 |
| 75 | W VA COL GRAD STUDY | Rollins, R. H. | HQ-RX | Cobb, W. E. | NSG 7089 | 3766 |
| 79 | NORTHWESTERN UNIV | Morris, J. D. | HQ-P | Radnor, M. | NGL 14-007-058 | 2041 |
| 79 | SOUTHERN METHODIST U | Tanner, T. A. | ARC | Starling, J. | NSG 2006 | 3402 |
| 79 | UNIV CALIF-BERKELEY | Tanner, T. A. | ARC | Laporte, T. | NGR 05-003-471 | 1484 |
| 79 | UNIV OF SANTA CLARA | Zill, L. P. | ARC | Alexander, G. | NCA 2-685402 | 1675 |
| 99 | BENNETT COLLEGE-NC | Pohly, J. G. | HQ-P | Sayles, J. H. | NGT 34-017-001 | 3044 |
| 99 | BROWN UNIVERSITY | Williams, T. S., Jr. | LARC | Mutch, T. A. | NAS 1-9680 | 3293 |
| 99 | CHICAGO STATE UNIV | Young, S. G. | LERC | Treptow, R. S. | NSG 3030 | 2034 |
| 99 | CAL ST COL-SONOMA | Zill, L. P. | ARC | Anderson, T. | NCA 2-720601 | 1249 |
| 99 | CAL STATE U-CHICO | Rich, W. B. | HQ-FE | Unavailable | NASW 2835 | 1250 |
| 99 | COLLEGE OF WM & MARY | Martin, D. J. | LARC | Aceto, H., Jr. | NAS 1-11958 | 3583 |
| 99 | COLLEGE OF WM & MARY | Anderson, A. F. | LARC | Rublein, G. T. | NGL 47-006-058 | 3584 |
| 99 | COLUMBIA UNIVERSITY | Jennings, N. | GSFC | Fountain, T. D. | NAS 5-20023 | 2863 |
| 99 | COLUMBIA UNIVERSITY | Guntharp, P. A. | GSFC | Fountain, T. D. | NAS 5-22311 | 2864 |
| 99 | COLUMBIA UNIVERSITY | Jennings, N. | GSFC | Lewis, J. P. | NAS 5-22936 | 2868 |
| 99 | CORNELL UNIVERSITY | Williams, T. S., Jr. | LARC | Sagan, C. E. | NAS 1-9683 | 2899 |
| 99 | CORNELL UNIV-MED CTR | Nerren, B. H. | MSFC | Rubin, A. L. | NAS 8-31513 | 2938 |
| 99 | ESTRN SHORE CMTY COL | Milliner, J. B. | WFC | Unavailable | NAS 6-2707 | 3591 |
| 99 | GEORGE WASHINGTON U | Straeter, T. A. | LARC | Maurer, W. D. | NSG 1170 | 1868 |
| 99 | GEORGIA INST OF TECH | Kerr, J. H. | MSFC | Shackelford, R. G. | NAS 8-30534 | 1970 |

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| 99 | GOUCHER COLLEGE | Pohly, J. G. | HQ-P | Billet, J. | NGT 21-123-001 | 2277 |
| 99 | HOWARD UNIVERSITY | Monroe, R. | HQ-U | Unavailable | NASW 2906 | 1877 |
| 99 | INDIANA U-BLOOMINGTN | Holley, H. L. | HQ-KT | Shriner, H. | NASW 2467 | 2102 |
| 99 | INDIANA U-BLOOMINGTN | Holley, H. L. | HQ-KT | Shriner, H. | NASW 2714 | 2103 |
| 99 | INDIANA U-BLOOMINGTN | Bivins, R. G. | HQ-KT | Shriner, R. D. | NASW 2845 | 2104 |
| 99 | MASS INST OF TECH | Wempe, T. E. | ARC | Sheridan, T. B. | NSG 2118 | 2502 |
| 99 | MASS INST OF TECH | Clark, T. A. | GSFC | Counselman, C. C., III | NGR 22-009-839 | 2489 |
| 99 | MASS INST OF TECH | Williams, T. S., Jr. | LARC | Shapiro, I. I. | NAS 1-9702 | 2416 |
| 99 | MASS INST OF TECH | O'Neal, R. L. | LARC | McCarthy, J. F., Jr. | NSG 1299 | 2497 |
| 99 | MASS INST OF TECH | Carter, C. H. | HQ-P | Harrington, J. V. | NGL 22-009-019 | 2447 |
| 99 | MASS INST OF TECH | Carter, C. H. | HQ-P | McCarthy, J. F., Jr. | NGL 22-009-638 | 2455 |
| 99 | MOREHOUSE COLLEGE | Pohly, J. G. | HQ-P | Gayles, J. N. | NGT 11-008-004 | 2003 |
| 99 | MORGAN STATE UNIV | Shorter, C. W. | GSFC | Collagan, R. B. | NGR 21-025-011 | 2294 |
| 99 | NM HIGHLANDS UNIV | Pohly, J. G. | HQ-P | Zenick, H. | NGT 32-010-001 | 2794 |
| 99 | NEW MEX ST U-LAS CR | Van Ess, J. C. | ARC | Weinberg, J. L. | NAS 2-8496 | 2802 |
| 99 | NORTHWESTERN UNIV | Keller, S. W. | HQ-Q | Radnor, M. | NGR 14-007-136 | 2046 |
| 99 | OHIO STATE UNIV | Dibattista, J. D. | LARC | Nerem, R. M. | NSG 1212 | 3128 |
| 99 | OKLAHOMA STATE UNIV | Miller, S. A. | ARC | Wiggins, K. E. | NAS 2-7273 | 3166 |
| 99 | OKLAHOMA STATE UNIV | Collin, E. E. | HQ-FE | Wiggins, K. E. | NASW 1964 | 3167 |
| 99 | OLD DOMINION UNIV | Martin, D. J. | LARC | Ousterhout, D. S. | NAS 1-9434 | 3604 |
| 99 | OLD DOMINION UNIV | Whitlock, C. H. | LARC | Kuo, C. Y. | NAS 1-14193 | 3607 |
| 99 | OLD DOMINION UNIV | Tynan, C. I., Jr. | LARC | Goglia, G. L. | NSG 1186 | 3639 |
| 99 | PENN STATE U-UNIV PK | Carter, C. H. | HQ-P | Reethof, G. | NGT 39-009-141 | 3248 |
| 99 | PRINCETON UNIVERSITY | Johnson, R. D. | ARC | O'Neill, G. K. | NSG 2062 | 2783 |
| 99 | PRINCETON UNIVERSITY | Sanchez, E. L. | HQ-RM | Dowell, E. H. | NSG 7131 | 2790 |
| 99 | SAN FRAN STATE UNIV | Zill, L. P. | ARC | Eisenberg, L. | NCA 2-660501 | 1278 |
| 99 | SAN JOSE STATE UNIV | Eddy, R. E. | ARC | Neidleman, L. D. | NAS 2-8983 | 1287 |
| 99 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Monge, P. R. | NCA 2-675512 | 1301 |
| 99 | SAN JOSE STATE UNIV | Zill, L. P. | ARC | Pefley, R. K. | NCA 2-675605 | 1311 |
| 99 | SHAW UNIVERSITY | Dixon, J. T. | HQ-U | Unavailable | NASW 2793 | 3072 |
| 99 | SOUTHEASTN OKLA ST U | Holley, H. L. | HQ-KT | Gold, H. | NASW 2512 | 3168 |
| 99 | SOUTHEASTN OKLA ST U | Holley, H. L. | HQ-KT | Unavailable | NASW 2629 | 3169 |
| 99 | SOUTHEASTN OKLA ST U | Bivins, R. G. | HQ-KT | Gold, C. H. | NASW 2881 | 3170 |
| 99 | SOUTHEASTN OKLA ST U | Pohly, J. G. | HQ-P | Robinson, J. L. | NGT 37-004-010 | 3171 |
| 99 | SPELMAN COLLEGE | Pohly, J. G. | HQ-P | McBay, S. M. | NGT 11-013-001 | 2012 |
| 99 | STANFORD UNIVERSITY | Zill, L. P. | ARC | Pederson, C. A. | NCA 2-745426 | 1352 |
| 99 | STANFORD UNIVERSITY | Williams, T. S., Jr. | LARC | Levinthal, E. C. | NAS 1-9682 | 1332 |
| 99 | TUFTS UNIVERSITY | Wempe, T. E. | ARC | Kreifieldt, J. G. | NSG 2156 | 2532 |
| 99 | UNIV ALA-HUNTSVILLE | Urban, E. W. | MSFC | Hendricks, J. B. | NAS 8-29316 | 1047 |
| 99 | UNIV ALA-HUNTSVILLE | Carter, C. H. | HQ-P | Rush, J. E. | NGL 01-008-001 | 1065 |
| 99 | UNIV CALIF-BERKELEY | Carter, C. H. | HQ-P | Anderson, K. A. | NGL 05-003-497 | 1474 |
| 99 | UNIV CALIF-L ANGELES | Redding, E. R. | HQ-P | Libby, W. F. | NGL 05-007-003 | 1554 |
| 99 | UNIV OF CHICAGO | Carter, C. H. | HQ-P | Simpson, J. A. | NGL 14-001-258 | 2062 |
| 99 | UNIV OF CHILE | Lafleur, W. | GSFC | Danyau, C. R. | NAS 5-1925 | 3818 |
| 99 | UNIV OF CONNECTICUT | Friedman, D. S. | GSFC | Wilde, D. U. | NAS 5-22539 | 1817 |
| 99 | UNIV OF CONNECTICUT | Holley, H. L. | HQ-KT | Wilde, D. U. | NASW 2516 | 1818 |
| 99 | UNIV OF DENVER | Ault, L. A. | HQ-KT | Freeman, J. E. | NASW 2766 | 1807 |
| 99 | UNIV OF DENVER | Ault, L. A. | HQ-KT | Johnson, F. D. | NASW 2892 | 1808 |
| 99 | UNIV OF GEORGIA | Harrison, J. O. | HQ-KT | Unavailable | NASW 2658 | 2014 |
| 99 | UNIV OF GEORGIA | Harrison, J. O. | HQ-KT | Carmon, J. L. | NASW 2820 | 2015 |
| 99 | UNIV OF HAWAII-MANOA | Smith, M. C., Jr. | ARC | Kuo, F. F. | NAS 2-8590 | 2017 |
| 99 | UNIV ILLINOIS-URBANA | Wempe, T. E. | ARC | Rouse, W. B. | NSG 2119 | 2090 |
| 99 | UNIV MARYLAND-COL PK | Fitzmaurice, M. W. | GSFC | Alley, C. O. | NSG 5062 | 2355 |
| 99 | UNIV MD-EASTRN SHORE | Floyd, J. C. | WFC | Unavailable | NAS 6-2595 | 2366 |
| 99 | UNIV MD-EASTRN SHORE | Oberholtzer, J. D. | WFC | Wutoh, J. G. | NSG 6006 | 2370 |
| 99 | U MINN-MNPLS-ST PAUL | Williams, T. S., Jr. | LARC | Nier, A. O. | NAS 1-9697 | 2614 |
| 99 | U MINN-MNPLS-ST PAUL | Carter, C. H. | HQ-P | Anderson, G. W. | NGT 24-005-078 | 2638 |
| 99 | UNIV OF NEW MEXICO | Holley, H. L. | HQ-KT | Shinnick, W. A. | NASW 2399 | 2817 |

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| 99 | UNIV OF NEW MEXICO | Bivins, R. G. | HQ-KT | Unavailable | NASW 2633 | 2818 |
| 99 | UNIV OF NEW MEXICO | Bivins, R. G. | HQ-KT | Unavailable | NASW 2805 | 2819 |
| 99 | UNIV OF PITTSBURGH | Holley, H. L. | HQ-KT | Holley, E. | NASW 2425 | 3274 |
| 99 | UNIV OF PITTSBURGH | Holley, H. L. | HQ-KT | Unavailable | NASW 2674 | 3275 |
| 99 | UNIV OF PITTSBURGH | Bivins, R. G. | HQ-KT | Unavailable | NASW 2838 | 3276 |
| 99 | UNIV OF SANTA CLARA | Walsh, L. J. | ARC | Bruno, A. V. | NSG 2036 | 1697 |
| 99 | UNIV OF SANTA CLARA | Billingham, J. | ARC | Stull, M. A. | NSG 2153 | 1701 |
| 99 | UNIV OF SOUTHERN CAL | Holley, H. L. | HQ-KT | Unavailable | NASW 2771 | 1709 |
| 99 | UNIV TEXAS-DALLAS | Williams, T. S., Jr. | LARC | Hanson, W. B. | NAS 1-9699 | 3521 |
| 99 | UNIV TEXAS-DALLAS | Carter, C. H. | HQ-P | Johnson, F. S. | NGL 44-004-130 | 3530 |
| 99 | UNIV OF VIRGINIA | Morse, S. | GSFC | Gibson, J. | NAS 5-23496 | 3666 |
| 99 | UNIV OF VIRGINIA | Martin, D. J. | LARC | Barnes, D. W. | NAS 1-12754 | 3663 |
| 99 | WASHINGTON UNIVERSTY | Quann, J. J. | GSFC | Morgan, R. P. | NAS 5-20680 | 2707 |
| 99 | WASHINGTON UNIVERSTY | Redding, E. R. | HQ-P | Morgan, R. P. | NGL 26-008-054 | 2709 |

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APPENDIX C

CROSS INDEX BY FIRST TECHNICAL OFFICER LOCATION

Technical Officers are usually located at the NASA installation funding a particular grant or contract. There may be a second technical officer, shown in the citation, at the same or a different installation. Abbreviations used for locations are: ARC, Ames Research Center; DFRC, Dryden Flight Research Center; GSFC, Goddard Space Flight Center; KSC, Kennedy Space Center, JSC, Johnson Space Center; LARC, Langley Research Center; LERC, Lewis Research Center; MSFC, Marshall Space Flight Center; National Space Technology Laboratories, NSTL; WFC, Wallops Flight Center and HQ, Headquarters. The HQ designator carries suffixed letters identifying individual Headquarters offices; an explanation of these identifiers and full addresses for all installations may be found in the prefatory pages. The key for the "Field Code" column is in Appendix B.

| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| ARC | Buell, D. A. | ADELPHI UNIVERSITY | NSG 2088 | Steinmetz, W. J. | 12 | 2842 |
| ARC | Zill, L. P. | ARIZONA STATE UNIV | NCA 2-35601 | Yuen, G. U. | 12 | 1093 |
| ARC | Bunch, T. | ARIZONA STATE UNIV | NCA 2-35602 | Moore, C. B. | 32 | 1094 |
| ARC | Danellis, J. V. | BISHOP COLLEGE | NGR 44-032-013 | Kutsky, R. J. | 51 | 3372 |
| ARC | Miquel, J. | BOWLING GRN STATE U | NGR 36-017-004 | Oster, I. I. | 51 | 3077 |
| ARC | Hall, C. F. | BRIGHAM YOUNG UNIV | NAS 2-7358 | Jones, D. E. | 13 | 3551 |
| ARC | Dyal, P. | BRIGHAM YOUNG UNIV | NGR 45-001-040 | Jones, D. E. | 13 | 3555 |
| ARC | Miquel, J. | BROOKLYN COLLEGE | NCA 2-75602 | Cottrell, S. F. | 51 | 2845 |
| ARC | Hall, C. F. | CALIF INST OF TECH | NAS 2-6556 | Munch, G. | 11 | 1188 |
| ARC | Olson, L. E. | CALIF INST OF TECH | NGL 05-002-229 | Coles, D. E. | 41 | 1212 |
| ARC | Cameron, R. M. | CALIF INST OF TECH | NGR 05-002-281 | Werner, M. W. | 11 | 1221 |
| ARC | Chang, S. | CALIF INST OF TECH | NGR 05-002-308 | Horowitz, N. H. | 59 | 1226 |
| ARC | Wydeven, T., Jr. | CALIF INST OF TECH | NSG 2154 | Shair, F. | 12 | 1233 |
| ARC | Maisel, M. D. | CAL POLY ST U-S LUIS | NCA 2-678601 | Grimes, J. E. | 21 | 1248 |
| ARC | Zill, L. P. | CAL ST COL-SONOMA | NCA 2-720601 | Anderson, T. | 99 | 1249 |
| ARC | Zill, L. P. | CAL STATE U-CHICO | NCA 2-110502 | Huntsinger, R. | 41 | 1251 |
| ARC | Zill, L. P. | CAL STATE U-CHICO | NCA 2-110504 | Sours, C. F. | 41 | 1252 |
| ARC | Zill, L. P. | CAL STATE U-CHICO | NCA 2-110601 | Zeilenga, J. H. | 11 | 1253 |
| ARC | Sanesta, P. D. | CAL STATE U-CHICO | NCA 2-110602 | Burleigh, J. R. | 51 | 1254 |
| ARC | Kourtides, D. A. | CAL STATE U-CHICO | NSG 2163 | Sours, R. | 12 | 1255 |
| ARC | Zill, L. P. | CAL STATE U-FULLERTN | NCA 2-253601 | Esser, A. E. | 51 | 1256 |
| ARC | Zill, L. P. | CAL STATE U-HAYWARD | NCA 2-290401 | Sieber, J. E. | 61 | 1258 |
| ARC | Zill, L. P. | CAL STATE U-HAYWARD | NCA 2-290501 | Warnke, D. E. | 32 | 1259 |
| ARC | Zill, L. P. | CAL STATE U-HAYWARD | NCA 2-290601 | Warnke, D. A. | 33 | 1260 |
| ARC | Zill, L. P. | CAL STATE U-HAYWARD | NCA 2-290602 | Smith, P. | 51 | 1261 |
| ARC | Carr, L. W. | CAL STATE U-LG BEACH | NAS 1-13656 | Cebeci, T. | 41 | 1262 |
| ARC | Zill, L. P. | CAL STATE U-L ANGLES | NCA 2-385502 | Goldwhite, H. | 11 | 1264 |
| ARC | Quattrone, P. D. | CASE WESTERN RESERVE | NGR 36-027-050 | Yeager, E. | 12 | 3083 |
| ARC | Fryer, T. B. | CASE WESTERN RESERVE | NGR 36-027-053 | Ko, W. H. | 59 | 3085 |
| ARC | Winget, C. M. | CENTRAL ST UNIV-OHIO | NSG 2074 | Nduaguba, J. C. | 51 | 3104 |
| ARC | Reynolds, R. T. | CLARK COLLEGE | NSG 2143 | Walker, G. H. | 31 | 1953 |
| ARC | Tremor, J. W. | COLORADO STATE UNIV | NAS 2-6615 | Baker, R. | 59 | 1722 |
| ARC | Zill, L. P. | COLORADO STATE UNIV | NCA 2-165502 | Sandborn, V. A. | 41 | 1734 |
| ARC | Zill, L. P. | COLORADO STATE UNIV | NCA 2-165503 | She, C. Y. | 13 | 1735 |
| ARC | Zill, L. P. | COLORADO STATE UNIV | NCA 2-165603 | She, C. Y. | 45 | 1736 |
| ARC | Zill, L. P. | COLORADO STATE UNIV | NCA 2-165604 | Sandborn, V. A. | 13 | 1737 |
| ARC | Holton, E. M. | COLORADO STATE UNIV | NGR 06-002-075 | Jordan, J. P. | 51 | 1738 |
| ARC | Debs, R. J. | COLORADO STATE UNIV | NGR 06-002-127 | Loehrke, R. I. | 46 | 1743 |
| ARC | Rositano, S. A. | COLORADO STATE UNIV | NSG 2009 | Sun, C. T. | 45 | 1749 |
| ARC | Tremor, J. W. | CORNELL UNIVERSITY | NAS 2-7846 | Steward, F. C. | 51 | 2900 |

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APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| ARC | Erickson, E. F. | CORNELL UNIVERSITY | NAS 2-8706 | Houck, J. R. | 11 | 2901 |
| ARC | Cameron, R. M. | CORNELL UNIVERSITY | NGR 33-010-081 | Houck, J. R. | 11 | 2912 |
| ARC | Cameron, R. M. | CORNELL UNIVERSITY | NGR 33-010-146 | Harwit, M. O. | 11 | 2917 |
| ARC | Cameron, R. M. | CORNELL UNIVERSITY | NGR 33-010-182 | Houck, J. R. | 11 | 2921 |
| ARC | Nelson, H. G. | CORNELL UNIVERSITY | NSG 2078 | Johnson, H. H. | 47 | 2927 |
| ARC | Sandler, H. | CORNELL UNIV-MED CTR | NGR 33-010-179 | Reis, D. J. | 53 | 2939 |
| ARC | Blanchard, M. B. | DE ANZA COLLEGE | NSG 2005 | Greisen, K. I. | 32 | 1268 |
| ARC | Holton, E. M. | EMORY UNIVERSITY | NGL 11-001-009 | Popovic, V. P. | 51 | 1954 |
| ARC | Winter, D. L. | EMORY UNIVERSITY | NGR 11-001-012 | Perachio, A. A. | 61 | 1955 |
| ARC | Sandler, H. | EMORY UNIVERSITY | NGR 11-001-016 | Bourne, G. H. | 51 | 1956 |
| ARC | Daunton, N. G. | EMORY UNIVERSITY | NGR 11-001-045 | Perachio, A. A. | 59 | 1957 |
| ARC | Winget, C. M. | FLORIDA A&M UNIV | NSG 2029 | Walker, C. A. | 59 | 1901 |
| ARC | Winget, C. M. | FLORIDA A&M UNIV | NSG 2103 | Lamba, S. S. | 59 | 1902 |
| ARC | Kirkpatrick, J. P. | GEORGIA INST OF TECH | NSG 2054 | Colwell, G. T. | 46 | 1990 |
| ARC | Hall, C. F. | HARVARD UNIVERSITY | NAS 2-9127 | Goody, R. M. | 11 | 2380 |
| ARC | Young, D. R. | HARVARD UNIVERSITY | NGR 22-007-256 | Tashjian, A. H., Jr. | 52 | 2398 |
| ARC | Poppoff, I. G. | HARVARD UNIVERSITY | NSG 2031 | McElroy, M. B. | 31 | 2406 |
| ARC | Ellis, S. | HARVARD UNIVERSITY | NSG 2144 | Goldberg, A. L. | 51 | 2407 |
| ARC | Orloff, K. | HARVEY MUDD COLLEGE | NAS 2-8925 | Woodson, T. T. | 41 | 1269 |
| ARC | Sandler, H. | HOWARD UNIVERSITY | NGL 09-011-017 | Hawthorne, E. W. | 53 | 1879 |
| ARC | Zill, L. P. | INDIANA U-BLOOMINGTN | NCA 2-335501 | Hayes, J. M. | 12 | 2105 |
| ARC | Zill, L. P. | INDIANA U-BLOOMINGTN | NCA 2-335601 | Hayes, J. M. | 12 | 2106 |
| ARC | Weisoman, N. W. | INDIANA U-BLOOMINGTN | NGR 15-003-007 | Neff, W. D. | 51 | 2109 |
| ARC | Haymaker, W. E. | INDIANA U-INDIANAPLS | NAS 2-7927 | Zeman, W. | 51 | 2112 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340405 | Grossman, A. S. | 19 | 2149 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340406 | Cook, W. J. | 41 | 2150 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340501 | Iversen, J. D. | 32 | 2151 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340502 | Herget, C. J. | 21 | 2152 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340503 | Anderson, D. A. | 41 | 2153 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340504 | Grossman, A. S. | 31 | 2154 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340505 | Anderson, D. A. | 41 | 2155 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340506 | Cook, W. J. | 41 | 2156 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340601 | Iversen, J. D. | 32 | 2157 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340602 | Grossman, A. S. | 11 | 2158 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340603 | Levenson, L. L. | 13 | 2159 |
| ARC | Zill, L. P. | IOWA STATE UNIV | NCA 2-340604 | Anderson, D. A. | 13 | 2160 |
| ARC | Rakich, J. V. | IOWA STATE UNIV | NGR 16-002-038 | Tannehill, J. C. | 41 | 2161 |
| ARC | Rossow, V. J. | IOWA STATE UNIV | NSG 2040 | Iversen, J. D. | 41 | 2162 |
| ARC | Chapman, G. T. | IOWA STATE UNIV | NSG 2091 | James, W. D. | 41 | 2163 |
| ARC | Chapman, G. T. | IOWA STATE UNIV | NSG 2150 | Herget, C. J. | 41 | 2164 |
| ARC | Presley, L. L. | IOWA STATE UNIV | NSG 2152 | Cook, W. J. | 41 | 2165 |
| ARC | Zill, L. P. | JERSEY CITY ST COL | NCA 2-350501 | Bailey, W. L. | 11 | 2748 |
| ARC | Ericson, E. F. | JERSEY CITY ST COL | NCA 2-350601 | Bailey, W. L. | 11 | 2749 |
| ARC | Patton, R. M. | JOHNS HOPKINS UNIV | NGR 21-001-111 | Brady, J. V. | 62 | 2283 |
| ARC | Zill, L. P. | KANSAS STATE UNIV | NCA 2-363501 | Ahmed, N. | 45 | 2182 |
| ARC | Zill, L. P. | KANSAS STATE UNIV | NCA 2-363601 | Ahmed, N. | 39 | 2183 |
| ARC | Quattrone, P. D. | KENT STATE UNIV-KENT | NSG 2013 | Madey, R. | 12 | 3107 |
| ARC | Zill, L. P. | LEHIGH UNIVERSITY | NCA 2-380501 | Wei, R. P. | 47 | 3214 |
| ARC | Rabbott, J. P., Jr. | MASS INST OF TECH | NAS 2-7262 | Ham, N. D. | 41 | 2417 |
| ARC | Rabbott, J. P., Jr. | MASS INST OF TECH | NAS 2-7620 | Faulkner, H. B. | 41 | 2418 |
| ARC | Hall, C. F. | MASS INST OF TECH | NAS 2-8977 | Pettengill, G. H. | 11 | 2419 |
| ARC | Hall, C. F. | MASS INST OF TECH | NAS 2-9132 | Shapiro, I. I. | 11 | 2420 |
| ARC | Raymos, R. | MASS INST OF TECH | NAS 2-9151 | Counselman, C. C., III | 11 | 2421 |
| ARC | Doolin, B. F. | MASS INST OF TECH | NGL 22-009-124 | Athans, M. | 49 | 2448 |
| ARC | Daunton, N. G. | MASS INST OF TECH | NGL 22-009-308 | Teuber, H. L. | 69 | 2451 |
| ARC | Winget, C. M. | MASS INST OF TECH | NGR 22-009-627 | Wurtman, R. J. | 53 | 2468 |
| ARC | Cameron, R. M. | MASS INST OF TECH | NGR 22-009-718 | McCord, T. B. | 11 | 2472 |
| ARC | Quattrone, P. D. | MASS INST OF TECH | NGR 22-009-723 | Reid, R. C. | 12 | 2473 |

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| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| ARC | Wempe, T. E. | MASS INST OF TECH | NGR 22-009-733 | Curry, R. E. | 41 | 2476 |
| ARC | Quattrone, P. D. | MASS INST OF TECH | NGR 22-009-766 | Steinfeld, J. I. | 12 | 2479 |
| ARC | Daunton, N. G. | MASS INST OF TECH | NGR 22-009-798 | Bizzi, E. | 51 | 2484 |
| ARC | Quattrone, P. D. | MASS INST OF TECH | NGR 22-009-799 | Modell, M. | 12 | 2485 |
| ARC | Daunton, N. G. | MASS INST OF TECH | NGR 22-009-826 | Nauta, W. J. | 51 | 2488 |
| ARC | Reynolds, R. T. | MASS INST OF TECH | NSG 2010 | Prinn, R. G. | 31 | 2498 |
| ARC | Daunton, N. G. | MASS INST OF TECH | NSG 2032 | Young, L. R. | 59 | 2499 |
| ARC | Doolin, B. F. | MASS INST OF TECH | NSG 2076 | Athans, M. | 49 | 2500 |
| ARC | Rabbott, J. P., Jr. | MASS INST OF TECH | NSG 2095 | Harris, W. L. | 41 | 2501 |
| ARC | Wempe, T. E. | MASS INST OF TECH | NSG 2118 | Sheridan, T. B. | 99 | 2502 |
| ARC | Williams, L. J. | MASS INST OF TECH | NSG 2129 | Taneja, N. K. | 41 | 2503 |
| ARC | Rabbott, J. P., Jr. | MASS INST OF TECH | NSG 2142 | Widnall, S. E. | 41 | 2504 |
| ARC | Van Ess, J. C. | NEW MEX ST U-LAS CR | NAS 2-8496 | Weinberg, J. L. | 99 | 2802 |
| ARC | Hall, C. F. | NEW YORK UNIVERSITY | NAS 2-7963 | Weinberg, J. L. | 11 | 2941 |
| ARC | Hicks, R. M. | NEW YORK UNIVERSITY | NGR 33-016-201 | Garabedian, P. R. | 41 | 2948 |
| ARC | Williams, L. J. | NORTHWESTERN UNIV | NSG 2149 | Spencer, F. A. | 41 | 2047 |
| ARC | Lauber, J. K. | OHIO STATE UNIV | NAS 2-8954 | Gilson, R. D. | 69 | 3110 |
| ARC | Cassen, P. M. | OHIO STATE UNIV | NGR 36-008-205 | Kulacki, F. A. | 19 | 3124 |
| ARC | Mehler, W. R. | OHIO STATE UNIV | NGR 36-008-211 | Lim, D. | 59 | 3125 |
| ARC | Billingham, J. | OHIO STATE UNIV | NSG 2162 | Dixon, R. S. | 45 | 3129 |
| ARC | Miller, S. A. | OKLAHOMA STATE UNIV | NAS 2-7273 | Wiggins, K. E. | 99 | 3166 |
| ARC | Keil, L. C. | PENN STATE U-UNIV PK | NSG 2122 | Severs, W. B. | 53 | 3252 |
| ARC | Hornby, H. | PEPPERDINE UNIV-MLBU | NSG 2159 | Album, H. J. | 75 | 1270 |
| ARC | Zill, L. P. | POLY INST OF NY | NCA 2-595501 | Pearce, E. M. | 12 | 2959 |
| ARC | Fohlen, G. M. | POLY INST OF NY | NSG 2147 | Pearce, E. M. | 12 | 2967 |
| ARC | Franklin, J. A. | PRINCETON UNIVERSITY | NAS 2-7350 | Seckel, E. | 41 | 2752 |
| ARC | Gaspers, P. A., Jr. | PRINCETON UNIVERSITY | NGR 31-001-197 | Dowell, E. H. | 41 | 2769 |
| ARC | Smith, G. A. | PRINCETON UNIVERSITY | NGR 31-001-277 | Dukes, T. A. | 41 | 2773 |
| ARC | Johnson, R. D. | PRINCETON UNIVERSITY | NSG 2062 | O'Neill, G. K. | 99 | 2783 |
| ARC | Billman, K. W. | PRINCETON UNIVERSITY | NSG 2108 | Bottoms, W. R. | 12 | 2784 |
| ARC | Horstman, C. C. | PRINCETON UNIVERSITY | NSG 2114 | Bogdonoff, S. M. | 41 | 2785 |
| ARC | Zill, L. P. | PURDUE UNIVERSITY | NCA 2-605501 | Smith, C. R. | 41 | 2122 |
| ARC | Gregory, T. J. | PURDUE UNIVERSITY | NGR 15-005-180 | Anderson, D. C. | 49 | 2130 |
| ARC | Tobak, M. | PURDUE UNIVERSITY | NSG 2135 | Abbott, D. E. | 41 | 2134 |
| ARC | Williams, L. J. | PURDUE UNIVERSITY | NSG 2158 | Drake, J. W. | 41 | 2135 |
| ARC | Grant, T. L. | RENSSELAER POLY-NY | NGR 33-018-188 | Modestino, J. W. | 45 | 2980 |
| ARC | Taketa, S. T. | RICE UNIVERSITY | NAS 2-8676 | Ward, C. H. | 53 | 3381 |
| ARC | Doolin, B. F. | RUTGERS U-N BRUNSWK | NSG 2148 | Hermann, R. | 49 | 2792 |
| ARC | Greenleaf, J. E. | ST LOUIS UNIVERSITY | NGR 26-006-039 | Van Beaumont, W. | 53 | 2685 |
| ARC | Anliker, J. E. | ST LOUIS UNIVERSITY | NSG 2023 | Van Beaumont, W. | 53 | 2687 |
| ARC | Pollack, J. B. | SAN DIEGO STATE UNIV | NSG 2138 | Angione, R. J. | 31 | 1274 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660410 | Orenberg, J. B. | 12 | 1276 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660411 | Catalano, G. T. | 45 | 1277 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660501 | Eisenberg, L. | 99 | 1278 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660502 | Shaw, S. J. | 21 | 1279 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660504 | Hagar, C. | 11 | 1280 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660505 | Plachy, W. Z. | 13 | 1281 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660506 | Auleb, L. | 51 | 1282 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660601 | Chealano, G. T. | 59 | 1283 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660602 | Orenberg, J. B. | 51 | 1284 |
| ARC | Zill, L. P. | SAN FRAN STATE UNIV | NCA 2-660603 | Hagar, C. | 11 | 1285 |
| ARC | Eddy, R. E. | SAN JOSE STATE UNIV | NAS 2-8983 | Neidleman, L. D. | 99 | 1287 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675304 | West, M. W. | 59 | 1288 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675317 | Holnstrom, F. | 47 | 1289 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675401 | Brown, D. E. | 73 | 1290 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675406 | Leclair, R. | 41 | 1291 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675409 | Neptune, J. | 12 | 1292 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675410 | Neptune, J. | 41 | 1293 |

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| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675411 | Sharfstein, H. | 41 | 1294 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675413 | Tucker, A. B. | 41 | 1295 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675414 | Maddock, M. E. | 19 | 1296 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675505 | Myronuk, D. J. | 41 | 1297 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675506 | Haight, R. D. | 51 | 1298 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675509 | Riegel, C. A. | 31 | 1299 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675511 | Sawrey, J. M. | 53 | 1300 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675512 | Monge, P. R. | 99 | 1301 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675513 | Leonard, T. E. | 41 | 1302 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675514 | Anderson, D. | 13 | 1303 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675515 | Tseng, R. | 53 | 1304 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675518 | Ellesen, R. | 31 | 1305 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675520 | Miller, A. | 41 | 1306 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675521 | Young, W. | 51 | 1307 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675601 | Myronuk, D. J. | 49 | 1308 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675602 | Tucker, A. B. | 13 | 1309 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675603 | Ballard, R. | 51 | 1310 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675605 | Pefley, R. K. | 99 | 1311 |
| ARC | Gaspers, P. A., Jr. | SAN JOSE STATE UNIV | NCA 2-675606 | Leonard, T. E. | 41 | 1312 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675607 | Bornstein, R. D. | 32 | 1313 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675608 | Grilione, P. | 12 | 1314 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675610 | Theng, R. | 51 | 1315 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675611 | Myronuk, D. J. | 49 | 1316 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675612 | Maddock, M. E. | 11 | 1317 |
| ARC | Blanchard, M. B. | SAN JOSE STATE UNIV | NCA 2-675613 | Maddock, M. E. | 32 | 1318 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675614 | Riegel, C. A. | 31 | 1319 |
| ARC | Zill, L. P. | SAN JOSE STATE UNIV | NCA 2-675615 | Sawrey, J. M. | 51 | 1320 |
| ARC | Mansfield, J. A. | SAN JOSE STATE UNIV | NCA 2-675616 | Sharfstein, H. | 49 | 1321 |
| ARC | Altman, R. L. | SAN JOSE STATE UNIV | NCA 2-675618 | Mayer, L. A. | 47 | 1322 |
| ARC | Stewart, J. D. | SAN JOSE STATE UNIV | NGL 05-046-002 | Clark, W. B. | 69 | 1323 |
| ARC | Wydeven, T., Jr. | SAN JOSE STATE UNIV | NGR 05-046-011 | Spitze, L. A. | 12 | 1324 |
| ARC | Reynolds, R. T. | SAN JOSE STATE UNIV | NSG 2047 | Riegel, C. A. | 11 | 1325 |
| ARC | Wydeven, T., Jr. | SAN JOSE STATE UNIV | NSG 2066 | Spitze, L. A. | 12 | 1326 |
| ARC | Klein, H. P. | SAN JOSE STATE UNIV | NSG 2090 | Neptune, J. A. | 51 | 1327 |
| ARC | Kourtides, D. A. | SAN JOSE STATE UNIV | NSG 2093 | Neptune, J. A. | 12 | 1328 |
| ARC | Kourtides, D. A. | SAN JOSE STATE UNIV | NSG 2105 | Young, W. | 43 | 1329 |
| ARC | Bolub, M. A. | SAN JOSE STATE UNIV | NSG 2111 | Neptune, J. A. | 12 | 1330 |
| ARC | Whitten, R. C. | SAN JOSE STATE UNIV | NSG 2130 | Riegel, C. A. | 31 | 1331 |
| ARC | Tanner, T. A. | SOUTHERN METHODIST U | NSG 2006 | Starling, J. | 79 | 3402 |
| ARC | Sandler, H. | SO UNIV-BATON ROUGE | NSG 2041 | Ray, G. | 59 | 2253 |
| ARC | Miquel, J. | STANFORD UNIVERSITY | NAS 2-6706 | Bensch, K. G. | 51 | 1335 |
| ARC | Barnett, R. M. | STANFORD UNIVERSITY | NAS 2-8898 | Pederson, C. A. | 75 | 1336 |
| ARC | Lorell, K. R. | STANFORD UNIVERSITY | NAS 2-9002 | Powell, J. D. | 45 | 1337 |
| ARC | Denery, D. G. | STANFORD UNIVERSITY | NAS 2-9083 | Debra, D. B. | 41 | 1338 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745414 | Pribram, K. H. | 53 | 1350 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745418 | Atkinson, R. C. | 53 | 1351 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745426 | Pederson, C. A. | 99 | 1352 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745503 | Barchas, J. D. | 53 | 1353 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745504 | Steele, C. R. | 53 | 1354 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745506 | Loew, G. B. | 12 | 1355 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745508 | Mathers, L. | 53 | 1356 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745509 | Reaven, G. M. | 53 | 1357 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745510 | Croft, T. A. | 42 | 1358 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745511 | Pound, G. M. | 12 | 1359 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745512 | Karamcheti, K. | 41 | 1360 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745513 | Peterson, A. M. | 45 | 1361 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745514 | Ritson, D. | 11 | 1362 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745515 | Bredt, T. H. | 21 | 1363 |

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| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745516 | Pribram, K. H. | 53 | 1364 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745517 | Mitchner, M. | 31 | 1365 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745518 | Powell, J. D. | 45 | 1366 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745519 | Petrosian, V. | 21 | 1367 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745520 | Oliger, J. | 21 | 1368 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745521 | Berger, P. A. | 51 | 1369 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745601 | Debra, D. | 46 | 1370 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745602 | Kline, S. J. | 13 | 1371 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745603 | Barnett, D. M. | 47 | 1372 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745604 | Rosenberg, N. | 75 | 1373 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745605 | Karamcheti, K. | 41 | 1374 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745606 | Parker, E. B. | 45 | 1375 |
| ARC | Zill, L. P. | STANFORD UNIVERSITY | NCA 2-745607 | Cerf, V. | 21 | 1376 |
| ARC | Presley, L. L. | STANFORD UNIVERSITY | NCA 2-745610 | Kline, S. J. | 41 | 1377 |
| ARC | Caroff, L. J. | STANFORD UNIVERSITY | NCA 2-745613 | Petrosian, V. | 11 | 1378 |
| ARC | Lumb, D. R. | STANFORD UNIVERSITY | NCA 2-745614 | Peterson, A. M. | 49 | 1379 |
| ARC | Doolin, B. F. | STANFORD UNIVERSITY | NGL 05-020-007 | Bryson, A. E. | 49 | 1380 |
| ARC | Sandler, H. | STANFORD UNIVERSITY | NGL 05-020-305 | Harrison, D. C. | 52 | 1389 |
| ARC | Jones, J. L. | STANFORD UNIVERSITY | NGR 05-020-345 | Thompson, D. A. | 49 | 1396 |
| ARC | Chang, S. | STANFORD UNIVERSITY | NGR 05-020-405 | Loew, G. H. | 12 | 1397 |
| ARC | Mehler, W. R. | STANFORD UNIVERSITY | NGR 05-020-435 | Chow, K. L. | 59 | 1399 |
| ARC | Danellis, J. V. | STANFORD UNIVERSITY | NGR 05-020-456 | Luetscher, J. A. | 52 | 1401 |
| ARC | Sandler, H. | STANFORD UNIVERSITY | NGR 05-020-615 | Beaver, W. L. | 53 | 1404 |
| ARC | Rubesin, M. W. | STANFORD UNIVERSITY | NGR 05-020-622 | Reynolds, W. C. | 47 | 1405 |
| ARC | Sandler, H. | STANFORD UNIVERSITY | NGR 05-020-634 | Harrison, D. C. | 52 | 1407 |
| ARC | Hickey, D. H. | STANFORD UNIVERSITY | NGR 05-020-676 | Karamcheti, K. | 13 | 1411 |
| ARC | Sandler, H. | STANFORD UNIVERSITY | NGR 05-020-690 | Angell, J. | 53 | 1412 |
| ARC | Hruby, R. J. | STANFORD UNIVERSITY | NGR 05-020-699 | Bredt, T. A. | 41 | 1413 |
| ARC | Goldstein, H. E. | STANFORD UNIVERSITY | NGR 05-020-710 | Bates, C. W. | 46 | 1414 |
| ARC | Erzberger, H. | STANFORD UNIVERSITY | NSG 2007 | Bryson, A. E. | 19 | 1419 |
| ARC | Sandler, H. | STANFORD UNIVERSITY | NSG 2020 | Popp, R. | 52 | 1420 |
| ARC | Billman, K. W. | STANFORD UNIVERSITY | NSG 2035 | Bershadar, D. | 13 | 1421 |
| ARC | Chisel, D. M. | STANFORD UNIVERSITY | NSG 2049 | Walker, A. B., Jr. | 11 | 1422 |
| ARC | Billman, K. W. | STANFORD UNIVERSITY | NSG 2050 | Mitchner, M. | 13 | 1423 |
| ARC | Poppa, H. R. | STANFORD UNIVERSITY | NSG 2071 | Pound, G. M. | 47 | 1424 |
| ARC | Reynolds, R. T. | STANFORD UNIVERSITY | NSG 2072 | Spreiter, J. R. | 31 | 1425 |
| ARC | Howe, J. T. | STANFORD UNIVERSITY | NSG 2085 | Bershadar, D. | 42 | 1426 |
| ARC | Young, D. R. | STANFORD UNIVERSITY | NSG 2092 | Steele, C. R. | 53 | 1427 |
| ARC | Franklin, J. A. | STANFORD UNIVERSITY | NSG 2100 | Debra, D. B. | 41 | 1428 |
| ARC | Nachtsheim, P. R. | STANFORD UNIVERSITY | NSG 2102 | Bates, C. W. | 47 | 1429 |
| ARC | Billingham, J. | STANFORD UNIVERSITY | NSG 2121 | Peterson, A. M. | 49 | 1430 |
| ARC | Sandler, H. | STANFORD UNIVERSITY | NSG 2132 | Harrison, D. C. | 52 | 1431 |
| ARC | Dolkas, C. B. | STANFORD UNIVERSITY | NSG 2141 | Olefsky, J. M. | 52 | 1432 |
| ARC | Wydeven, T., Jr. | STANFORD UNIVERSITY | NSG 2161 | Brauman, J. I. | 12 | 1433 |
| ARC | Reynolds, R. T. | STATE UNIV NY-ALBANY | NSG 2080 | Kiang, C. S. | 31 | 2991 |
| ARC | Tremor, J. W. | STATE U NY-STONY BRK | NAS 2-8986 | Steward, F. C. | 51 | 3005 |
| ARC | Boese, R. W. | STATE U NY-STONY BRK | NCA 2-760601 | Lutz, B. L. | 13 | 3006 |
| ARC | Zill, L. P. | TEXAS A&M UNIVERSITY | NCA 2-773501 | Flamm, D. | 12 | 3432 |
| ARC | Malcolm, G. N. | TEXAS A&M UNIVERSITY | NSG 2123 | MacHa, J. M. | 41 | 3438 |
| ARC | Holton, E. M. | TEXAS TECH UNIV | NSG 2137 | Kenny, A. D. | 51 | 3443 |
| ARC | Zill, L. P. | TUFTS UNIVERSITY | NCA 2-785401 | Kreifeldt, J. G. | 41 | 2528 |
| ARC | Zill, L. P. | TUFTS UNIVERSITY | NCA 2-785501 | Kreifeldt, J. G. | 41 | 2529 |
| ARC | Zill, L. P. | TUFTS UNIVERSITY | NCA 2-785601 | Cole, J. E., III | 41 | 2530 |
| ARC | Wempe, T. E. | TUFTS UNIVERSITY | NSG 2156 | Kreifeldt, J. G. | 99 | 2532 |
| ARC | Zill, L. P. | TULANE UNIVERSITY | NCA 2-800402 | Brizzee, K. R. | 51 | 2259 |
| ARC | Zill, L. P. | TULANE UNIVERSITY | NCA 2-800501 | Brizzee, K. R. | 53 | 2260 |
| ARC | Mehler, W. R. | TULANE UNIVERSITY | NSG 2139 | Brizzee, K. R. | 53 | 2264 |
| ARC | Philpott, D. E. | TUSKEGEE INSTITUTE | NCA 2-810601 | Sapp, W. J. | 13 | 1036 |

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| ARC | Golub, M. A. | UNIV OF AKRON | NSG 2061 | Gent, A. N. | 13 | 3134 |
| ARC | Tanner, T. A. | UNIV ALA-HUNTSVILLE | NSG 2058 | Rogers, J. G. | 69 | 1068 |
| ARC | Haughney, L. C. | UNIV ALASKA-FAIRBNKS | NSG 2053 | Sivjee, G. G. | 31 | 1091 |
| ARC | Hall, C. F. | UNIV OF ARIZONA | NAS 2-6265 | Gehrels, A. M. | 11 | 1102 |
| ARC | Hall, C. F. | UNIV OF ARIZONA | NAS 2-7839 | Sonett, C. P. | 13 | 1103 |
| ARC | Hall, C. F. | UNIV OF ARIZONA | NAS 2-8818 | Tomasko, M. G. | 31 | 1104 |
| ARC | Zill, L. P. | UNIV OF ARIZONA | NCA 2-40502 | Call, R. L. | 45 | 1115 |
| ARC | Zill, L. P. | UNIV OF ARIZONA | NCA 2-40503 | Williams, P. L. | 45 | 1116 |
| ARC | Zill, L. P. | UNIV OF ARIZONA | NCA 2-40504 | Thompson, R. I. | 49 | 1117 |
| ARC | Zill, L. P. | UNIV OF ARIZONA | NCA 2-40601 | Caroff, L. J. | 13 | 1118 |
| ARC | Zill, L. P. | UNIV OF ARIZONA | NCA 2-40602 | Hubbard, W. B., Jr. | 11 | 1119 |
| ARC | Caroff, L. J. | UNIV OF ARIZONA | NCA 2-40604 | Weymann, R. J. | 11 | 1120 |
| ARC | Cameron, R. M. | UNIV OF ARIZONA | NGR 03-002-332 | Larson, H. P. | 11 | 1142 |
| ARC | Cameron, R. M. | UNIV OF ARIZONA | NGR 03-002-390 | Hoffman, W. F. | 11 | 1149 |
| ARC | Cameron, R. M. | UNIV OF ARIZONA | NSG 2042 | Woolf, N. | 11 | 1150 |
| ARC | Ballhaus, W. F. | UNIV OF ARIZONA | NSG 2112 | Seebass, A. R. | 41 | 1151 |
| ARC | Ahtye, W. F. | UNIV ARKANSAS-FAYETV | NGL 04-001-007 | Testerman, M. K. | 41 | 1178 |
| ARC | Zill, L. P. | UNIV ARKANSAS-LTL RK | NCA 2-45501 | Testerman, M. K. | 41 | 1180 |
| ARC | Johnson, D. A. | UNIV ARKANSAS-LTL RK | NCA 2-45601 | Testerman, M. K. | 41 | 1181 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50302 | Sherman, F. S. | 32 | 1453 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50406 | Angelakos, D. J. | 45 | 1454 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50501 | Everhart, T. E. | 47 | 1455 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50502 | Buxbaum, R. M. | 75 | 1456 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50503 | Postman, L. J. | 41 | 1457 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50504 | Bhattacharyya, B. K. | 49 | 1458 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50508 | Haftner, E. R. | 69 | 1459 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50509 | Nicoll, C. S. | 51 | 1460 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50510 | Everhart, T. E. | 47 | 1461 |
| ARC | Zill, L. P. | UNIV CALIF-BERKELEY | NCA 2-50603 | Laporte, T. | 75 | 1462 |
| ARC | Lanyi, J. K. | UNIV CALIF-BERKELEY | NCA 2-50607 | Packer, L. | 51 | 1465 |
| ARC | Quattrone, P. D. | UNIV CALIF-BERKELEY | NGL 05-003-024 | Pace, N. | 59 | 1468 |
| ARC | Chapman, G. T. | UNIV CALIF-BERKELEY | NGR 05-003-451 | Holt, M. | 41 | 1480 |
| ARC | Newsom, B. D. | UNIV CALIF-BERKELEY | NGR 05-003-470 | Pace, N. | 59 | 1483 |
| ARC | Tanner, T. A. | UNIV CALIF-BERKELEY | NGR 05-003-471 | Laporte, T. | 79 | 1484 |
| ARC | Cameron, R. M. | UNIV CALIF-BERKELEY | NGR 05-003-511 | Townes, C. H. | 11 | 1486 |
| ARC | Billman, K. W. | UNIV CALIF-BERKELEY | NGR 05-003-559 | Gustafson, T. K. | 45 | 1489 |
| ARC | Wrigley, R. C. | UNIV CALIF-BERKELEY | NSG 2003 | Horne, A. J. | 39 | 1493 |
| ARC | Kourtides, D. A. | UNIV CALIF-BERKELEY | NSG 2026 | Williamson, R. B. | 44 | 1494 |
| ARC | Wydeven, T., Jr. | UNIV CALIF-BERKELEY | NSG 2043 | Bell, A. T. | 43 | 1495 |
| ARC | Riccitiello, S. R. | UNIV CALIF-BERKELEY | NSG 2084 | Williamson, R. B. | 12 | 1496 |
| ARC | Ciffone, D. L. | UNIV CALIF-BERKELEY | NSG 2110 | Wehausen, J. V. | 41 | 1497 |
| ARC | Cameron, R. M. | UNIV CALIF-BERKELEY | NSG 2125 | Muller, R. A. | 11 | 1498 |
| ARC | Waters, M. H. | UNIV CALIF-BERKELEY | NSG 2127 | Horonjeff, R. | 41 | 1499 |
| ARC | Waters, M. H. | UNIV CALIF-BERKELEY | NSG 2133 | Horonjeff, R. | 41 | 1500 |
| ARC | Billman, K. W. | UNIV CALIF-BERKELEY | NSG 2151 | Gustafson, T. K. | 13 | 1501 |
| ARC | Wood, R. D. | UNIV CALIF-BERKELEY | NSG 2160 | Laporte, T. | 39 | 1502 |
| ARC | Taketa, S. T. | UNIV CALIF-DAVIS | NAS 2-8685 | Mazelis, M. | 51 | 1511 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180501 | Baldwin, R. L. | 53 | 1516 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180502 | Fong, C. Y. | 21 | 1517 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180503 | White, B. R. | 41 | 1518 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180504 | Chapman, L. F. | 61 | 1519 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180505 | Evans, J. W. | 51 | 1520 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180506 | Bernauer, E. M. | 61 | 1521 |
| ARC | Zill, L. P. | UNIV CALIF-DAVIS | NCA 2-180601 | Bernauer, E. M. | 52 | 1522 |
| ARC | Millard, J. | UNIV CALIF-DAVIS | NCA 2-180607 | Hatfield, J. L. | 32 | 1524 |
| ARC | Oyama, J. | UNIV CALIF-DAVIS | NGL 05-004-008 | Smith, A. H. | 51 | 1525 |
| ARC | Holton, E. M. | UNIV CALIF-DAVIS | NGR 05-004-099 | Horowitz, J. M. | 51 | 1527 |
| ARC | Mandel, A. D. | UNIV CALIF-IRVINE | NGR 05-041-012 | Tilles, J. G. | 52 | 1529 |

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| ARC | Hall, C. F. | UNIV CALIF-L ANGELES | NAS 2-7251 | Coleman, P. J., Jr. | 11 | 1532 |
| ARC | Polentz, P. P. | UNIV CALIF-L ANGELES | NAS 2-7785 | Dixon, W. J. | 41 | 1533 |
| ARC | Hall, C. F. | UNIV CALIF-L ANGELES | NAS 2-8808 | Russell, C. T. | 19 | 1534 |
| ARC | Hall, C. F. | UNIV CALIF-L ANGELES | NAS 2-9128 | Kaula, W. M. | 11 | 1535 |
| ARC | Hall, C. F. | UNIV CALIF-L ANGELES | NAS 2-9131 | Schubert, G. | 11 | 1536 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390402 | Douglass, D. L. | 12 | 1546 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390405 | Schmit, L. A. | 41 | 1547 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390501 | Carterette, E. C. | 21 | 1548 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390502 | Parlow, A. | 53 | 1549 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390503 | Coleman, P. J., Jr. | 32 | 1550 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390601 | Parlow, A. | 51 | 1551 |
| ARC | Zill, L. P. | UNIV CALIF-L ANGELES | NCA 2-390602 | Schmit, L. A. | 21 | 1552 |
| ARC | Anderson, A. E. | UNIV CALIF-L ANGELES | NGR 05-007-323 | Meecham, W. C. | 41 | 1566 |
| ARC | Daunton, N. G. | UNIV CALIF-L ANGELES | NGR 05-007-418 | Markham, C. H. | 51 | 1576 |
| ARC | Pollack, J. | UNIV CALIF-L ANGELES | NSG 2094 | Schubert, G. | 31 | 1579 |
| ARC | Poppa, H. R. | UNIV CALIF-L ANGELES | NSG 2115 | Douglass, D. L. | 13 | 1580 |
| ARC | Hall, C. F. | UNIV CALIF-SAN DIEGO | NAS 2-6552 | Fillius, R. W. | 11 | 1594 |
| ARC | Billingham, J. | UNIV CALIF-SAN DIEGO | NGL 05-009-109 | West, J. B. | 53 | 1612 |
| ARC | Cameron, R. M. | UNIV CALIF-SAN DIEGO | NGL 05-009-230 | Soifer, B. T. | 11 | 1615 |
| ARC | Cameron, R. M. | UNIV CALIF-SAN DIEGO | NGR 05-005-055 | Stein, W. A. | 11 | 1617 |
| ARC | Winter, D. L. | UNIV CALIF-SAN DIEGO | NGR 05-009-083 | Galambos, R. | 61 | 1621 |
| ARC | Anliker, J. E. | UNIV CALIF-SAN DIEGO | NGR 05-009-198 | Galambos, R. | 59 | 1625 |
| ARC | Sandler, H. | UNIV CALIF-SAN DIEGO | NGR 05-009-257 | Baily, N. A. | 52 | 1631 |
| ARC | Zill, L. P. | UNIV CALIF-SAN FRAN | NCA 2-665301 | Degroot, J. | 51 | 1646 |
| ARC | Zill, L. P. | UNIV CALIF-SAN FRAN | NCA 2-665401 | Dallman, M. F. | 51 | 1647 |
| ARC | Zill, L. P. | UNIV CALIF-SAN FRAN | NCA 2-665402 | Aly, R. | 51 | 1648 |
| ARC | Zill, L. P. | UNIV CALIF-SAN FRAN | NCA 2-665502 | Dallman, M. F. | 51 | 1649 |
| ARC | Zill, L. P. | UNIV CALIF-SAN FRAN | NCA 2-665601 | Aly, R. | 51 | 1650 |
| ARC | Danellis, J. V. | UNIV CALIF-SAN FRAN | NCA 2-665602 | Dallman, M. F. | 51 | 1651 |
| ARC | Zill, L. P. | UNIV CALIF-SAN FRAN | NGL 05-025-014 | Stoeckenius, W. | 59 | 1652 |
| ARC | Zill, L. P. | UNIV CALIF-S BARBARA | NCA 2-680601 | Rochelle, R. H. | 51 | 1655 |
| ARC | Hall, C. F. | UNIV OF CHICAGO | NAS 2-6551 | Simpson, J. A. | 11 | 2051 |
| ARC | Cameron, R. M. | UNIV OF CHICAGO | NGR 14-001-211 | Harper, D. A., Jr. | 11 | 2068 |
| ARC | Daunton, N. G. | UNIV OF CHICAGO | NGR 14-001-225 | Goldberg, J. M. | 51 | 2069 |
| ARC | Gillespie, C. M., Jr. | UNIV OF CHICAGO | NGR 14-001-227 | Harper, D. A., Jr. | 11 | 2070 |
| ARC | Cameron, R. M. | UNIV OF CHICAGO | NSG 2057 | Hildebrand, R. H. | 11 | 2072 |
| ARC | Burke, J. A. | UNIV OF CINCINNATI | NAS 2-7850 | Tabakoff, W. | 41 | 3135 |
| ARC | Sinnott, D. B. | UNIV COLORADO-BOLDR | NAS 2-8816 | Stewart, A. I. | 19 | 1758 |
| ARC | Cameron, R. M. | UNIV COLORADO-BOLDR | NSG 2055 | Webb, W. | 11 | 1791 |
| ARC | Poppoff, I. G. | UNIV COLORADO-BOLDR | NSG 2126 | London, J. | 31 | 1792 |
| ARC | Davis, S. S. | UNIV COLORADO-BOLDR | NSG 2128 | Kadlec, R. A. | 41 | 1793 |
| ARC | Gregory, T. J. | UNIV OF CONNECTICUT | NSG 2155 | White, P. R. | 41 | 1820 |
| ARC | Munoz, R. M. | UNIV OF DENVER | NAS 2-8200 | Murcray, D. G. | 13 | 1803 |
| ARC | Quattrone, P. D. | UNIV OF DENVER | NGR 06-004-125 | Ross, L. W. | 12 | 1812 |
| ARC | Zill, L. P. | UNIV OF FLORIDA | NCA 2-240501 | Clarkson, M. H. | 41 | 1920 |
| ARC | Anliker, J. E. | UNIV OF FLORIDA | NGR 10-005-057 | Webb, W. B. | 69 | 1925 |
| ARC | Malcolm, G. N. | UNIV OF FLORIDA | NSG 2120 | Clarkson, M. H. | 41 | 1928 |
| ARC | Smith, M. C., Jr. | UNIV OF HAWAII-MANOA | NAS 2-8590 | Kuo, F. F. | 99 | 2017 |
| ARC | Taketa, S. T. | UNIV OF HAWAII-MANOA | NAS 2-8687 | Siegel, S. M. | 51 | 2018 |
| ARC | Smith, M. C., Jr. | UNIV OF HAWAII-MANOA | NAS 2-9175 | Lichtenberger, W. W. | 45 | 2019 |
| ARC | Ginoza, H. S. | UNIV HOUSTON-HOUSTON | NAS 2-9072 | Allred, J. C. | 51 | 3445 |
| ARC | Zill, L. P. | UNIV HOUSTON-HOUSTON | NCA 2-295502 | Kiehn, R. M. | 41 | 3459 |
| ARC | Zill, L. P. | UNIV HOUSTON-HOUSTON | NCA 2-295503 | Bartel, A. H. | 51 | 3460 |
| ARC | Zill, L. P. | UNIV HOUSTON-HOUSTON | NCA 2-295601 | Becker, R. S. | 51 | 3461 |
| ARC | Zill, L. P. | UNIV HOUSTON-HOUSTON | NCA 2-295602 | Kiehn, R. M. | 13 | 3462 |
| ARC | Slye, R. E. | UNIV ILLINOIS-URBANA | NGR 14-005-202 | Ray, R. M. | 21 | 2084 |
| ARC | Mehler, W. R. | UNIV ILLINOIS-URBANA | NGR 14-005-221 | Ades, H. W. | 53 | 2085 |
| ARC | Williams, B. A. | UNIV ILLINOIS-URBANA | NSG 2099 | Heath, J. E. | 51 | 2089 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| ARC | Wempe, T. E. | UNIV ILLINOIS-URBANA | NSG 2119 | Rouse, W. B. | 99 | 2090 |
| ARC | Hall, C. F. | UNIV OF IOWA | NAS 2-6553 | Van Allen, J. A. | 11 | 2168 |
| ARC | Galloway, T. L. | UNIV OF KANSAS | NSG 2145 | Roskam, J. | 41 | 2208 |
| ARC | Zill, L. P. | UNIV OF KANSAS | NSG 4007 | Roskam, J. | 41 | 2212 |
| ARC | McCutcheon, E. P. | UNIV OF KENTUCKY | NAS 2-8883 | Knapp, C. E. | 46 | 2224 |
| ARC | Mehler, W. R. | UNIV OF LOUISVILLE | NSG 2067 | Fuller, P. M. | 51 | 2236 |
| ARC | Sharp, J. C. | UNIV MARYLAND-BALT | NSG 2098 | Grenell, R. G. | 53 | 2298 |
| ARC | Zill, L. P. | UNIV MARYLAND-COL PK | NCA 2-420403 | Ponnamperuma, C. A. | 12 | 2309 |
| ARC | Zill, L. P. | UNIV MARYLAND-COL PK | NCA 2-420501 | Ponnamperuma, C. A. | 11 | 2310 |
| ARC | Boese, R. W. | UNIV MARYLAND-COL PK | NCA 2-420701 | Wilkerson, T. B. | 31 | 2311 |
| ARC | MacElroy, R. D. | UNIV MARYLAND-COL PK | NSG 2109 | Ponnamperuma, C. A. | 59 | 2347 |
| ARC | Hall, C. F. | UNIV OF MASS-AMHERST | NAS 2-9129 | McGill, G. E. | 11 | 2534 |
| ARC | Simmonds, R. C. | UNIV MICH-ANN ARBOR | NAS 2-6057 | Von Baumgarten A, R. J. | 61 | 2550 |
| ARC | Lincoln, K. A. | UNIV MICH-ANN ARBOR | NAS 2-8992 | Carignan, G. R. | 13 | 2551 |
| ARC | Hall, C. F. | UNIV MICH-ANN ARBOR | NAS 2-9126 | Donahue, T. M. | 11 | 2552 |
| ARC | Hall, C. F. | UNIV MICH-ANN ARBOR | NAS 2-9130 | Nagy, A. F. | 11 | 2553 |
| ARC | Zill, L. P. | UNIV MICH-ANN ARBOR | NCA 2-440601 | Howe, R. M. | 46 | 2573 |
| ARC | Feistel, T. W. | UNIV MICH-ANN ARBOR | NSG 2018 | Kroeger, R. A. | 41 | 2595 |
| ARC | Galloway, T. L. | UNIV MICH-ANN ARBOR | NSG 2056 | Kroeger, R. A. | 41 | 2596 |
| ARC | Anderson, S. B. | UNIV MICH-ANN ARBOR | NSG 2113 | Kroeger, R. A. | 41 | 2597 |
| ARC | Thorley, G. W. | U MINN-MNPLS-ST PAUL | NAS 2-8812 | Nier, A. O. | 31 | 2617 |
| ARC | Cameron, R. M. | U MINN-MNPLS-ST PAUL | NGR 24-005-267 | Ney, E. P. | 11 | 2637 |
| ARC | Cameron, R. M. | U MINN-MNPLS-ST PAUL | NSG 2014 | Ney, E. P. | 11 | 2639 |
| ARC | Johnson, D. A. | UNIV MO-COLUMBIA | NCA 2-450604 | Miles, J. B. | 45 | 2693 |
| ARC | Holton, E. M. | UNIV MO-COLUMBIA | NGL 26-004-021 | Musacchia, X. J. | 51 | 2694 |
| ARC | Ginoza, H. S. | UNIV MO-KANSAS CITY | NGR 26-001-018 | Millich, F. | 12 | 2695 |
| ARC | Zill, L. P. | UNIV MO-ROLLA | NCA 2-450501 | Levenson, L. L. | 47 | 2698 |
| ARC | Zill, L. P. | UNIV MO-ROLLA | NCA 2-450601 | James, W. J. | 47 | 2699 |
| ARC | Zill, L. P. | UNIV MO-ROLLA | NCA 2-450602 | Levenson, L. L. | 13 | 2700 |
| ARC | Zill, L. P. | UNIV MO-ROLLA | NCA 2-450603 | Levenson, L. L. | 47 | 2701 |
| ARC | Quattrone, P. D. | UNIV MO-ROLLA | NGR 26-004-097 | Mills, J. B. | 59 | 2702 |
| ARC | Sebesta, P. D. | UNIV OF MONTANA | NSG 2030 | Craighead, J. J. | 39 | 2720 |
| ARC | Nelson, H. G. | UNIV NEBRASKA-LINCLN | NGR 28-004-025 | Johnson, D. L. | 47 | 2727 |
| ARC | Davis, S. S. | UNIV NEVADA-L VEGAS | NSG 2140 | Fromme, J. A. | 41 | 2730 |
| ARC | Zill, L. P. | UNIV OF NEW MEXICO | NCA 2-510502 | Riedesel, M. L. | 51 | 2820 |
| ARC | Haughney, L. C. | UNIV OF NEW MEXICO | NSG 2052 | Peterson, A. W. | 31 | 2838 |
| ARC | Caroff, L. J. | UNIV OREGON-EUGENE | NCA 2-587601 | Kemp, J. | 13 | 3187 |
| ARC | Cameron, R. M. | UNIV OREGON-EUGENE | NGR 38-003-034 | Donnelly, R. J. | 11 | 3190 |
| ARC | Whiting, E. E. | UNIV OREGON-EUGENE | NGR 38-003-036 | Crasemann, B. | 13 | 3191 |
| ARC | Zill, L. P. | UNIV OF PENNSYLVANIA | NAS 2-7730 | Brown, A. H. | 51 | 3263 |
| ARC | Zill, L. P. | UNIV OF PENNSYLVANIA | NGR 39-010-149 | Brown, A. H. | 51 | 3266 |
| ARC | Billingham, J. | UNIV OF PITTSBURGH | NSG 2116 | Gatewood, G. D. | 11 | 3286 |
| ARC | Black, D. | UNIV OF PITTSBURGH | NSG 2117 | Gatewood, G. D. | 11 | 3287 |
| ARC | Cameron, R. M. | UNIV OF ROCHESTER | NGR 33-019-127 | Pipher, J. L. | 11 | 3037 |
| ARC | Taketa, S. T. | UNIV SAN FRANCISCO | NAS 2-7059 | Benton, E. V. | 13 | 1664 |
| ARC | Zill, L. P. | UNIV SAN FRANCISCO | NCA 2-670501 | Furst, A. | 51 | 1668 |
| ARC | Zill, L. P. | UNIV SAN FRANCISCO | NCA 2-670503 | Furst, A. | 52 | 1669 |
| ARC | Zill, L. P. | UNIV SAN FRANCISCO | NCA 2-670504 | Furst, A. | 53 | 1670 |
| ARC | Kourtides, D. A. | UNIV SAN FRANCISCO | NSG 2039 | Hilado, C. J. | 12 | 1671 |
| ARC | Miquel, J. | UNIV SAN FRANCISCO | NSG 2063 | Benton, E. V. | 51 | 1672 |
| ARC | Riccitiello, S. R. | UNIV SAN FRANCISCO | NSG 2164 | Hilado, C. J. | 13 | 1673 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685402 | Alexander, G. | 79 | 1675 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685408 | Barker, W. A. | 32 | 1676 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685409 | Markle, G. E. | 41 | 1677 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685501 | Pefley, R. K. | 59 | 1678 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685502 | Sweeney, M. A. | 12 | 1679 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685505 | Pefley, R. K. | 41 | 1680 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685507 | McCormick, P. T. | 31 | 1681 |

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| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685508 | Bruno, A. V. | 75 | 1682 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685509 | Tomlinson, G. A. | 51 | 1683 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685510 | Alexander, G. J. | 75 | 1684 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685601 | Raggett, J. | 41 | 1685 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685603 | Sweeney, M. A. | 51 | 1686 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685605 | Pefley, R. K. | 59 | 1687 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685606 | Barker, W. A. | 32 | 1688 |
| ARC | Zill, L. P. | UNIV OF SANTA CLARA | NCA 2-685610 | McCormick, P. T. | 11 | 1689 |
| ARC | Hochstein, L. I. | UNIV OF SANTA CLARA | NCA 2-685614 | Tomlinson, G. A. | 31 | 1690 |
| ARC | Reynolds, R. T. | UNIV OF SANTA CLARA | NCA 2-685701 | Barker, W. A. | 32 | 1691 |
| ARC | Doolin, B. F. | UNIV OF SANTA CLARA | NGR 05-017-010 | Siljak, D. D. | 49 | 1692 |
| ARC | Quaide, W. L. | UNIV OF SANTA CLARA | NGR 05-017-027 | Greeley, R. | 32 | 1693 |
| ARC | Hruby, R. J. | UNIV OF SANTA CLARA | NGR 05-017-031 | Dunn, W. R. | 41 | 1694 |
| ARC | Buell, D. A. | UNIV OF SANTA CLARA | NGR 05-017-033 | Cheng, D. Y. | 41 | 1695 |
| ARC | Walsh, L. J. | UNIV OF SANTA CLARA | NSG 2036 | Bruno, A. V. | 99 | 1697 |
| ARC | Dyal, P. | UNIV OF SANTA CLARA | NSG 2075 | Parkin, C. W. | 13 | 1698 |
| ARC | Lomax, H. | UNIV OF SANTA CLARA | NSG 2086 | Vinokur, M. | 13 | 1699 |
| ARC | Meyer, G. | UNIV OF SANTA CLARA | NSG 2106 | Weissenberger, S. | 41 | 1700 |
| ARC | Billingham, J. | UNIV OF SANTA CLARA | NSG 2153 | Stull, M. A. | 99 | 1701 |
| ARC | Hall, C. F. | UNIV OF SOUTHERN CAL | NAS 2-6558 | Judge, D. L. | 11 | 1703 |
| ARC | Hall, C. F. | UNIV OF SOUTHERN CAL | NAS 2-7969 | Intriligator, D. S. | 11 | 1704 |
| ARC | Zill, L. P. | UNIV OF SOUTHERN CAL | NCA 2-730501 | Cheng, H. K. | 41 | 1710 |
| ARC | Zill, L. P. | UNIV OF SOUTHERN CAL | NCA 2-730601 | Cheng, H. K. | 41 | 1711 |
| ARC | Hruby, R. J. | UNIV STHN COLORADO | NSG 2048 | Jenkins, R. | 41 | 1815 |
| ARC | Dannenberg, R. E. | UNIVERSITY OF SPLIT | NSG 7163 | Slapnicar, P. I. | 13 | 3827 |
| ARC | Rubesin, M. W. | UNIV TEXAS-ARLINGTON | NSG 2077 | Payne, F. R. | 41 | 3477 |
| ARC | Mason, R. H. | UNIV TEXAS-AUSTIN | NGR 44-012-240 | Ulrich, B. T. | 11 | 3501 |
| ARC | Tanner, T. A. | UNIV TEXAS-AUSTIN | NSG 2065 | Helmreich, R. L. | 69 | 3510 |
| ARC | Medan, R. T. | UNIV TEXAS-AUSTIN | NSG 2101 | Summa, J. M. | 41 | 3511 |
| ARC | Hall, C. F. | UNIV TEXAS-DALLAS | NAS 2-8802 | Hoffman, J. H. | 31 | 3522 |
| ARC | Sandler, H. | UNIV TEXAS-GALVESTON | NGR 44-088-002 | Stone, H. L. | 52 | 3546 |
| ARC | Zill, L. P. | UNIV OF UTAH | NCA 2-821601 | Smith, L. M. | 51 | 3564 |
| ARC | Coler, C. R. | UNIV OF UTAH | NGR 45-003-108 | Plummer, R. P. | 45 | 3568 |
| ARC | Zill, L. P. | UNIV OF VIRGINIA | NCA 2-825501 | Updike, O. L. | 52 | 3667 |
| ARC | Mehler, W. R. | UNIV OF VIRGINIA | NGR 47-005-186 | Ebbesson, S. O. | 51 | 3672 |
| ARC | Oyama, J. | UNIV OF VIRGINIA | NGR 47-005-213 | Pitts, G. C. | 51 | 3675 |
| ARC | Holton, E. M. | UNIV OF WASHINGTON | NAS 2-8541 | Baylink, D. J. | 53 | 3737 |
| ARC | Zill, L. P. | UNIV OF WASHINGTON | NCA 2-850501 | Businger, J. A. | 41 | 3741 |
| ARC | Zill, L. P. | UNIV OF WASHINGTON | NCA 2-850602 | Mueller, J. I. | 46 | 3742 |
| ARC | Rose, W. C. | UNIV OF WASHINGTON | NGL 48-002-047 | Childs, M. E. | 41 | 3747 |
| ARC | Steinle, F. W., Jr. | UNIV OF WASHINGTON | NGR 48-002-107 | Russell, D. A. | 41 | 3750 |
| ARC | Rose, W. C. | UNIV OF WASHINGTON | NGR 48-002-141 | Childs, M. E. | 41 | 3752 |
| ARC | Blanchard, M. B. | UNIV OF WASHINGTON | NSG 2131 | Hodge, P. W. | 19 | 3758 |
| ARC | Taketa, S. T. | UNIV WISC-MADISON | NAS 2-7314 | Tibbetts, T. W. | 51 | 3772 |
| ARC | Holton, E. M. | UNIV WISC-MADISON | NAS 2-8752 | Deluca, H. F. | 12 | 3773 |
| ARC | Hall, C. F. | UNIV WISC-MADISON | NAS 2-8813 | Suomi, V. E. | 31 | 3774 |
| ARC | Young, D. R. | UNIV WISC-MADISON | NGR 50-002-051 | Cameron, J. R. | 52 | 3792 |
| ARC | Mandel, A. D. | UNIV WISC-MADISON | NGR 50-002-191 | Balish, E. | 52 | 3795 |
| ARC | Mandel, A. D. | UNIV WISC-MADISON | NSG 2002 | Dick, E. C. | 52 | 3799 |
| ARC | Mandel, A. D. | UNIV WISC-MADISON | NSG 2104 | Dick, E. | 52 | 3800 |
| ARC | Kimball, W. L. | UPPSALA UNIVERSITY | NGR 52-028-004 | Engstrom, H. | 53 | 3826 |
| ARC | Lowenstein, M. | UTAH STATE UNIV | NAS 2-8108 | Shaw, A. W. | 31 | 3573 |
| ARC | Zill, L. P. | UTAH STATE UNIV | NCA 2-820501 | Martin, C. F. | 21 | 3575 |
| ARC | Zill, L. P. | VASSAR COLLEGE | NCA 2-823501 | Christensen, C. | 51 | 3040 |
| ARC | Zill, L. P. | VASSAR COLLEGE | NCA 2-823601 | Christensen, C. | 59 | 3041 |
| ARC | Gaspers, P. A., Jr. | VIRGINIA POLY INST | NSG 2016 | Weisshaar, T. A. | 41 | 3729 |
| ARC | Williams, D. P. | VIRGINIA POLY INST | NSG 2038 | Brinson, H. F. | 47 | 3730 |
| ARC | Morse, H. A. | WASHINGTON UNIVERSTY | NAS 2-7613 | Hohenemser, K. H. | 41 | 2706 |

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| ARC | Young, D. R. | WAYNE STATE UNIV | NSG 2008 | Orne, D. | 53 | 2609 |
| ARC | Hicks, R. M. | WICHITA STATE UNIV | NSG 2134 | Wentz, W. H., Jr. | 41 | 2221 |
| ARC | Winget, C. M. | WRIGHT STATE UNIV | NAS 2-8578 | Beljan, J. R. | 53 | 3163 |
| ARC | Young, D. R. | WRIGHT STATE UNIV | NSG 2034 | Beljan, J. R. | 53 | 3164 |
| ARC | Winget, C. M. | XAVIER UNIV-LA | NGR 19-007-004 | Ashman, P. U. | 51 | 2266 |
| ARC | Zill, L. P. | OREGON GRADUATE CTR | NCA 2-585501 | Swanson, L. W. | 51 | 3177 |
| ARC | Zill, L. P. | OREGON GRADUATE CTR | NCA 2-585601 | Swanson, L. W. | 51 | 3178 |
| DFRC | Deets, D. A. | LEHIGH UNIVERSITY | NSG 4005 | Johnson, S. H. | 41 | 3223 |
| DFRC | Deets, D. A. | LEHIGH UNIVERSITY | NSG 4010 | Johnson, S. H. | 41 | 3224 |
| DFRC | Szalai, K. J. | MASS INST OF TECH | NGL 22-009-548 | Whitaker, H. D. | 41 | 2454 |
| DFRC | Berry, D. T. | PURDUE UNIVERSITY | NSG 4003 | Swaim, R. L. | 41 | 2139 |
| DFRC | Kordes, E. E. | STANFORD UNIVERSITY | NGL 05-020-498 | McIntosh, S. C., Jr. | 41 | 1391 |
| DFRC | Deets, D. A. | STANFORD UNIVERSITY | NSG 4002 | Bryson, A. E. | 41 | 1434 |
| DFRC | Ehernberger, L. J. | TEXAS A&M UNIVERSITY | NGR 44-001-081 | Scoggins, J. R. | 31 | 3434 |
| DFRC | Carter, A. L. | UNIV CALIF-L ANGELES | NAS 4-1995 | Unavailable | 41 | 1537 |
| DFRC | Rediess, H. A. | UNIV CALIF-L ANGELES | NGL 05-007-379 | Balakrishnan, A. V. | 41 | 1561 |
| DFRC | Ehernberger, L. J. | UNIV CALIF-L ANGELES | NSG 4001 | Wurtele, M. G. | 31 | 1582 |
| DFRC | Gee, S. W. | UNIV OF KANSAS | NAS 4-2148 | Roskam, J. | 41 | 2187 |
| DFRC | Horton, V. W. | UNIV OF KANSAS | NSG 4004 | Muirhead, V. U. | 49 | 2210 |
| DFRC | Fields, R. A. | UNIV OF KANSAS | NSG 4006 | Lenzen, K. H. | 41 | 2211 |
| DFRC | Jenkins, J. M. | UNIV OF KANSAS | NSG 4008 | Lenzen, K. H. | 41 | 2213 |
| DFRC | Saltzman, E. J. | UNIV OF KANSAS | NSG 4009 | Muirhead, V. U. | 49 | 2214 |
| GSFC | Tarlton, M. J. | ADELPHI UNIVERSITY | NAS 5-22529 | Dooher, J. P. | 39 | 2841 |
| GSFC | Schmid, P. E. | ALCORN STATE UNIV | NGR 25-012-001 | Paul, M. P. | 31 | 2650 |
| GSFC | Schubert, J. | AMERICAN UNIVERSITY | NAS 5-21970 | MacLeod, N. H. | 39 | 1835 |
| GSFC | Sobieski, S. | BELOIT COLLEGE | NGR 50-010-001 | Schroeder, D. J. | 11 | 3769 |
| GSFC | Morse, S. | BOSTON COLLEGE | NAS 5-22994 | Kelley, A. J. | 72 | 2371 |
| GSFC | Kupperian, J. E. | BOSTON UNIVERSITY | NSG 5055 | Adelman, S. J. | 11 | 2376 |
| GSFC | Boldt, E. A. | BOWIE STATE COLLEGE | NGR 21-027-001 | Tornabene, H. S. | 11 | 2268 |
| GSFC | Fuchs, A. J. | BOWIE STATE COLLEGE | NGR 21-027-004 | Srivastava, S. | 21 | 2269 |
| GSFC | Caruso, A. J. | BOWIE STATE COLLEGE | NGR 21-027-010 | Bhatia, M. S. | 13 | 2270 |
| GSFC | Mundy, J. R. | BOWIE STATE COLLEGE | NGT 21-027-012 | Kirksey, C. H. | 21 | 2271 |
| GSFC | Gross, F. C. | BOWIE STATE COLLEGE | NSG 5009 | Rock, M. | 12 | 2272 |
| GSFC | Schnetzler, C. C. | BROOKLYN COLLEGE | NAS 5-20961 | Weil, C. B. | 75 | 2844 |
| GSFC | Lynch, T. J. | BROWN UNIVERSITY | NSG 5036 | Cooper, D. B. | 21 | 3301 |
| GSFC | Davis, M. A. | CALIF INST OF TECH | NAS 5-11066 | Stone, E. C. | 13 | 1189 |
| GSFC | Kelsall, T. N. | CALIF INST OF TECH | NAS 5-20492 | Neugebauer, G. | 31 | 1190 |
| GSFC | Gallagher, W. F. | CALIF INST OF TECH | NAS 5-20721 | Stone, L. C. | 13 | 1191 |
| GSFC | Hymowitz, E. W. | CALIF INST OF TECH | NAS 5-22555 | Neugebauer, G. | 11 | 1192 |
| GSFC | Neupert, W. M. | CALIF INST OF TECH | NAS 5-22939 | Zirin, H. | 11 | 1193 |
| GSFC | Nelson, D. W. | CALIF INST OF TECH | NAS 5-22965 | Ingersoll, A. P. | 31 | 1194 |
| GSFC | Sobieski, S. | CALIF INST OF TECH | NAS 5-23287 | Neugebauer, G. | 11 | 1195 |
| GSFC | Wrublik, D. P. | CALIF INST OF TECH | NAS 5-23315 | Garmire, G. P. | 11 | 1196 |
| GSFC | Weinreb, M. B. | CALIF INST OF TECH | NAS 5-23615 | Garmire, G. P. | 11 | 1197 |
| GSFC | Sobieski, S. | CALIF INST OF TECH | NGR 05-002-311 | Oke, J. B. | 11 | 1228 |
| GSFC | Lowman, P. D. | CALIF INST OF TECH | NSG 5058 | Allen, C. R. | 39 | 1234 |
| GSFC | McAvoy, N. | CASE WESTERN RESERVE | NGR 36-027-068 | Pao, Y. H. | 13 | 3087 |
| GSFC | McAvoy, N. | CASE WESTERN RESERVE | S-27376B | Pao, Y. H. | 45 | 3101 |
| GSFC | Fichtel, C. E. | CATHOLIC UNIVERSITY | NGR 09-005-077 | Crannell, H. | 12 | 1838 |
| GSFC | Stief, L. J. | CATHOLIC UNIVERSITY | NGR 09-005-103 | Timmons, R. B. | 12 | 1840 |
| GSFC | Dennis, B. R. | CATHOLIC UNIVERSITY | NSG 5066 | Werntz, C. | 13 | 1841 |
| GSFC | Reinhardt, V. S. | CATHOLIC UNIVERSITY | NSG 5107 | Major, F. G. | 13 | 1842 |
| GSFC | McAvoy, N. | CATHOLIC UNIVERSITY | NSG 5111 | Lally, J. | 13 | 1843 |
| GSFC | Mueller, J. L. | CITY COLLEGE OF N Y | NAS 5-22392 | Pierson, W. J. | 33 | 2847 |
| GSFC | Stothers, R. B. | CITY COLLEGE OF N Y | NGL 33-013-040 | Erlbach, E. | 11 | 2852 |
| GSFC | Halem, M. | CITY COLLEGE OF N Y | NGR 33-013-086 | Spar, J. | 31 | 2853 |
| GSFC | Miller, J. E. | CITY COLLEGE OF N Y | NSG 5013 | Schilling, D. L. | 45 | 2856 |
| GSFC | Thekaekara, M. P. | COLORADO STATE UNIV | NAS 5-22372 | Vonder Haar, T. H. | 41 | 1723 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| GSFC | Nelson, D. | COLORADO STATE UNIV | NAS 5-22959 | Vonder Haar, T. H. | 39 | 1724 |
| GSFC | Theon, J. S. | COLORADO STATE UNIV | NGR 06-002-098 | Reiter, E. R. | 31 | 1740 |
| GSFC | Curran, R. J. | COLORADO STATE UNIV | NGR 06-002-102 | Vonder Haar, T. H. | 31 | 1741 |
| GSFC | Carpenter, L. H. | COLORADO STATE UNIV | NGR 06-002-191 | Thompson, E. G. | 32 | 1747 |
| GSFC | Adler, R. F. | COLORADO STATE UNIV | NSG 5011 | Vonder Haar, T. H. | 31 | 1754 |
| GSFC | Neil, E. A. | COLORADO STATE UNIV | NSG 5073 | Marlatt, W. E. | 31 | 1755 |
| GSFC | Rados, R. M. | COLORADO STATE UNIV | NSG 5105 | Sinclair, P. C. | 31 | 1756 |
| GSFC | Jennings, N. | COLUMBIA UNIVERSITY | NAS 5-20023 | Fountain, T. D. | 99 | 2863 |
| GSFC | Guntharp, P. A. | COLUMBIA UNIVERSITY | NAS 5-22311 | Fountain, T. D. | 99 | 2864 |
| GSFC | Donley, J. L. | COLUMBIA UNIVERSITY | NAS 5-22341 | Novick, R. | 11 | 2865 |
| GSFC | Worrall, W. | COLUMBIA UNIVERSITY | NAS 5-22408 | Novick, R. | 31 | 2866 |
| GSFC | White, A. F., Jr. | COLUMBIA UNIVERSITY | NAS 5-22890 | Novick, R. | 11 | 2867 |
| GSFC | Jennings, N. | COLUMBIA UNIVERSITY | NAS 5-22936 | Lewis, J. P. | 99 | 2868 |
| GSFC | Weinreb, M. B. | COLUMBIA UNIVERSITY | NAS 5-23623 | Novick, R. | 11 | 2869 |
| GSFC | Bissell, E. E., Jr. | COLUMBIA UNIVERSITY | NGR 33-008-102 | Novick, R. | 11 | 2875 |
| GSFC | Smith, D. E. | COLUMBIA UNIVERSITY | NGR 33-008-146 | Scholz, C. H. | 19 | 2876 |
| GSFC | Thaddeus, P. | COLUMBIA UNIVERSITY | NGR 33-008-191 | Hartmann, S. R. | 11 | 2881 |
| GSFC | Smith, D. E. | COLUMBIA UNIVERSITY | NSG 5072 | Bilham, R. G. | 32 | 2889 |
| GSFC | Kupperian, J. E. | COLUMBIA UNIVERSITY | NSG 5079 | Wolff, R. S. | 11 | 2890 |
| GSFC | Ungar, S. G. | COLUMBIA UNIVERSITY | NSG 5080 | Webb, K. E. | 32 | 2891 |
| GSFC | Kupperian, J. E. | COLUMBIA UNIVERSITY | NSG 5118 | Wolff, R. S. | 11 | 2892 |
| GSFC | Berg, O. E. | CONCORDIA COL-MOORHD | NAS 5-23557 | Bailey, C. F. | 11 | 2613 |
| GSFC | Muckel, G. A. | COPPIN STATE COLLEGE | NGR 21-122-001 | Sommerfeldt, D. E. | 21 | 2274 |
| GSFC | Webster, W. H., Jr. | COPPIN STATE COLLEGE | NSG 5051 | McDermott, P. P. | 12 | 2275 |
| GSFC | Rosenzweig, M. B. | COPPIN STATE COLLEGE | NSG 5052 | Pinsky, S. S. | 21 | 2276 |
| GSFC | Findlay, J. A. | CORNELL UNIVERSITY | NAS 5-20705 | Walker, J. C. | 13 | 2902 |
| GSFC | Hymowitz, E. W. | CORNELL UNIVERSITY | NAS 5-22586 | Houck, J. R. | 11 | 2903 |
| GSFC | Conrath, B. J. | CORNELL UNIVERSITY | NAS 5-23236 | Gierasch, P. J. | 13 | 2904 |
| GSFC | Trombka, J. I. | CORNELL UNIVERSITY | NSG 5037 | Greisen, K. I. | 11 | 2930 |
| GSFC | Smith, D. E. | CORNELL UNIVERSITY | NSG 5060 | Turcotte, D. L. | 32 | 2931 |
| GSFC | Westrom, J. L. | DC TEACHERS COLLEGE | NGR 09-053-003 | Bever, R. S. | 39 | 1845 |
| GSFC | Jastrow, R. | DARTMOUTH COLLEGE | NSG 5014 | Huke, R. E. | 39 | 2734 |
| GSFC | Aiken, A. C. | DELAWARE STATE COL | NGR 08-002-005 | Helmy, E. M. | 13 | 1829 |
| GSFC | Nelson, E. D. | DREXEL UNIVERSITY | NAS 5-22946 | House, F. B. | 13 | 3205 |
| GSFC | Rodriguez, G. E. | DUKE UNIVERSITY | NAS 5-22475 | Wilson, T. G. | 45 | 3046 |
| GSFC | Rodriguez, G. E. | DUKE UNIVERSITY | NGL 34-001-001 | Simonett, D. S. | 45 | 3047 |
| GSFC | Trombka, J. I. | DUKE UNIVERSITY | NGR 34-001-041 | O'Foghluha, F. R. | 11 | 3048 |
| GSFC | Cote, C. E. | DUKE UNIVERSITY | NSG 5020 | Wang, P. P. | 45 | 3051 |
| GSFC | Heath, D. F. | FAIRFIELD UNIVERSITY | NGR 07-010-002 | McElaney, J. H. | 31 | 1816 |
| GSFC | McDonald, F. B. | FEDERAL CITY COLLEGE | NGR 09-050-001 | Whiteside, H. | 13 | 1847 |
| GSFC | Webster, W. H., Jr. | FEDERAL CITY COLLEGE | NGR 09-050-003 | Nottingham, W. C. | 11 | 1848 |
| GSFC | Alterescu, S. | FEDERAL CITY COLLEGE | NGR 09-050-013 | Friedman, C. | 52 | 1850 |
| GSFC | Nava, D. E. | FEDERAL CITY COLLEGE | NGR 09-050-019 | Phelps, H. L. | 39 | 1851 |
| GSFC | Fuchs, A. J. | FEDERAL CITY COLLEGE | NGR 09-050-020 | Bakshi, J. S. | 21 | 1852 |
| GSFC | Lancaster, E. R. | FEDERAL CITY COLLEGE | NSG 5003 | Johnson, E. S. | 21 | 1853 |
| GSFC | Langel, R. A. | FLORIDA INST OF TECH | NSG 5038 | Jin, R. S. | 13 | 1905 |
| GSFC | Schnetzler, C. C. | FLORIDA STATE UNIV | NAS 5-22578 | Buie, B. F. | 32 | 1907 |
| GSFC | Hobbs, R. W. | FLORIDA TECH UNIV | NSG 5110 | Katzin, J. C. | 11 | 1915 |
| GSFC | Chen, W. T. | GALLAUDET COLLEGE | NSG 5019 | Tobin, H. | 52 | 1854 |
| GSFC | Levine, D. M. | GEORGIA INST OF TECH | NAS 5-20956 | Robertson, D. W. | 31 | 1965 |
| GSFC | O'Donnell, H. | GEORGIA INST OF TECH | NAS 5-22344 | Ryan, C. E. | 45 | 1966 |
| GSFC | Dod, L. R. | GEORGIA INST OF TECH | NAS 5-22422 | Bassett, H. L. | 45 | 1967 |
| GSFC | King, J. L. | GEORGIA INST OF TECH | NAS 5-23603 | Dees, J. W. | 45 | 1968 |
| GSFC | King, J. L. | GEORGIA INST OF TECH | NSG 5012 | Dees, J. W. | 45 | 1995 |
| GSFC | King, J. L. | GEORGIA INST OF TECH | NSG 5082 | Blue, M. D. | 31 | 1996 |
| GSFC | Picciolo, G. L. | HAHNEMANN MED COL | NAS 5-20865 | Gutekunst, R. R. | 59 | 3210 |
| GSFC | Underhill, A. B. | HARVARD UNIVERSITY | NAS 5-20764 | Dupree, A. K. | 11 | 2382 |
| GSFC | Donley, J. L. | HARVARD UNIVERSITY | NAS 5-22343 | Reeves, E. M. | 11 | 2383 |

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| GSFC | White, A. F., Jr. | HARVARD UNIVERSITY | NAS 5-22374 | Withbroe, G. L. | 11 | 2384 |
| GSFC | Findlay, J. A. | HARVARD UNIVERSITY | NAS 5-23199 | McElroy, M. B. | 31 | 2385 |
| GSFC | Underhill, A. B. | HARVARD UNIVERSITY | NAS 5-23371 | Dupree, A. K. | 11 | 2386 |
| GSFC | Donley, J. L. | HARVARD UNIVERSITY | NAS 5-23494 | Reeves, E. M. | 31 | 2387 |
| GSFC | McAvoy, N. | HARVARD UNIVERSITY | NGL 22-007-117 | Bloembergen, N. | 13 | 2393 |
| GSFC | Theon, J. S. | HARVARD UNIVERSITY | NGR 22-007-275 | Lindzen, R. S. | 31 | 2404 |
| GSFC | Kupperian, J. E. | HARVARD UNIVERSITY | NGR 22-007-285 | Noyes, R. W. | 11 | 2405 |
| GSFC | Kupperian, J. E. | HARVARD UNIVERSITY | NSG 5099 | Dupree, A. K. | 11 | 2408 |
| GSFC | Mundy, J. R. | HOWARD UNIVERSITY | NCA 5-14 | Cox, E. L. | 49 | 1878 |
| GSFC | Chen, W. T. | HOWARD UNIVERSITY | NGR 09-011-055 | Fischmann, E. J. | 52 | 1882 |
| GSFC | Yin, L. I. | HOWARD UNIVERSITY | NGR 09-011-057 | Tsang, T. | 13 | 1883 |
| GSFC | Alterescu, S. | HOWARD UNIVERSITY | NSG 5016 | Shepard, J. | 53 | 1888 |
| GSFC | Maran, S. P. | HOWARD UNIVERSITY | NSG 5021 | Kumar, C. K. | 11 | 1889 |
| GSFC | Stief, L. J. | HOWARD UNIVERSITY | NSG 5071 | Jackson, W. M. | 12 | 1890 |
| GSFC | Alterescu, S. | HOWARD UNIVERSITY | NSG 5081 | Deloatch, E. M. | 53 | 1891 |
| GSFC | Picciolo, G. L. | HOWARD UNIVERSITY | NSG 5104 | Okrend, H. H. | 51 | 1892 |
| GSFC | Hobbs, R. W. | INDIANA U-BLOOMINGTN | NAS 5-22987 | Falk, J. | 11 | 2101 |
| GSFC | Corrigan, J. P. | JOHNS HOPKINS UNIV | NAS 5-11415 | Doering, D. M. | 31 | 2278 |
| GSFC | Bogges, A. | JOHNS HOPKINS UNIV | NAS 5-23316 | Fastie, W. G. | 11 | 2279 |
| GSFC | Bissell, E. E., Jr. | JOHNS HOPKINS UNIV | NGR 21-001-001 | Fastie, W. G. | 11 | 2282 |
| GSFC | Sobieski, S. | JOHNS HOPKINS UNIV | NGR 21-001-115 | Fastie, W. G. | 11 | 2284 |
| GSFC | Kupperian, J. E. | JOHNS HOPKINS UNIV | NSG 5029 | Henry, R. C. | 11 | 2286 |
| GSFC | Maran, S. P. | JOHNS HOPKINS UNIV | NSG 5065 | Feldman, P. D. | 11 | 2287 |
| GSFC | Kupperian, J. E. | JOHNS HOPKINS UNIV | NSG 5067 | Moos, H. W. | 11 | 2288 |
| GSFC | Kupperian, J. E. | JOHNS HOPKINS UNIV | NSG 5078 | Henry, R. C. | 11 | 2289 |
| GSFC | Coates, R. J. | JOHNS HOPKINS UNIV | NSG 5090 | Marsh, B. D. | 32 | 2290 |
| GSFC | Kupperian, J. E. | JOHNS HOPKINS UNIV | NSG 5119 | Henry, R. C. | 11 | 2291 |
| GSFC | Salomonson, V. V. | KANSAS STATE UNIV | NSG 5101 | Kanemasu, E. T. | 31 | 2185 |
| GSFC | Alterescu, S. | LINCOLN UNIV-PA | NSG 5008 | Frankowsky, J. W. | 52 | 3226 |
| GSFC | Ormes, J. F. | LA STATE U-BAT ROUGE | NAS 5-20883 | Huggett, R. W. | 13 | 2242 |
| GSFC | Davis, M. A. | MASS INST OF TECH | NAS 5-11062 | Bridge, H. S. | 13 | 2423 |
| GSFC | Ostaff, W. A. | MASS INST OF TECH | NAS 5-11082 | Clark, G. W. | 19 | 2424 |
| GSFC | Piterski, N. J. | MASS INST OF TECH | NAS 5-11450 | Clark, G. W. | 11 | 2425 |
| GSFC | Ratliff, R. B. | MASS INST OF TECH | NAS 5-21980 | Staelin, D. H. | 31 | 2426 |
| GSFC | Staelin, D. | MASS INST OF TECH | NAS 5-22485 | Shive, J. | 19 | 2427 |
| GSFC | Heath, D. F. | MASS INST OF TECH | NAS 5-22915 | Cunnold, S. | 31 | 2428 |
| GSFC | Gloersen, P. | MASS INST OF TECH | NAS 5-22929 | Staelin, D. H. | 41 | 2429 |
| GSFC | Weinreb, M. B. | MASS INST OF TECH | NAS 5-23624 | Bradt, H. V. | 11 | 2430 |
| GSFC | Halem, M. | MASS INST OF TECH | NGR 22-009-727 | Stone, P. H. | 31 | 2474 |
| GSFC | Bissell, E. E., Jr. | MASS INST OF TECH | NGR 22-009-730 | Bradt, H. V. | 11 | 2475 |
| GSFC | McElroy, J. H. | MASS INST OF TECH | NGR 22-009-741 | Javan, A. | 13 | 2478 |
| GSFC | Sobieski, S. | MASS INST OF TECH | NGR 22-009-778 | McCord, T. B. | 11 | 2480 |
| GSFC | Clark, T. A. | MASS INST OF TECH | NGR 22-009-839 | Counselman, C. C., III | 99 | 2489 |
| GSFC | Hansen, J. E. | MASS INST OF TECH | NSG 5076 | Rivas, E. K. | 11 | 2515 |
| GSFC | Wexler, R. | MASS INST OF TECH | NSG 5095 | Austin, P. M. | 31 | 2516 |
| GSFC | Hansen, J. E. | MASS INST OF TECH | NSG 5113 | Stone, P. H. | 31 | 2517 |
| GSFC | Alterescu, S. | MOREHOUSE COLLEGE | NAS 5-23571 | Norris, T. E. | 52 | 2001 |
| GSFC | Friedman, D. S. | MORGAN STATE UNIV | NAS 5-23558 | Collagan, R. B. | 49 | 2293 |
| GSFC | Shorter, C. W. | MORGAN STATE UNIV | NGR 21-025-011 | Collagan, R. B. | 99 | 2294 |
| GSFC | Mundy, J. R. | MORGAN STATE UNIV | NGT 21-025-006 | Proctor, N. K. | 19 | 2295 |
| GSFC | Baker, G. R. | MORGAN STATE UNIV | NSG 5074 | Hammond, E. C., Jr. | 11 | 2296 |
| GSFC | Broderick, J. C. | NEW MEX INST MINING | NAS 5-20916 | Vander Linden, K. | 32 | 2796 |
| GSFC | Maran, S. P. | NEW MEX INST MINING | NCA 5-43 | Hume, W. | 11 | 2797 |
| GSFC | Maran, S. P. | NEW MEX INST MINING | NCA 5-48 | Hume, W. | 19 | 2798 |
| GSFC | Maran, S. P. | NEW MEX INST MINING | NCA 5-58 | Hume, W. | 11 | 2799 |
| GSFC | Maran, S. P. | NEW MEX INST MINING | NCA 5-59 | Hume, W. | 11 | 2800 |
| GSFC | Bissell, E. E., Jr. | NEW MEX ST U-LAS CR | NAS 5-20681 | Sayles, A., Jr. | 19 | 2803 |
| GSFC | Halem, M. | NEW YORK UNIVERSITY | NGL 33-016-013 | Isaacson, E. | 31 | 2942 |

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| GSFC | Schneck, P. B. | NEW YORK UNIVERSITY | NSG 5032 | Schwartz, J. T. | 13 | 2953 |
| GSFC | Stewart, R. W. | NEW YORK UNIVERSITY | NSG 5033 | Hoffert, M. I. | 31 | 2954 |
| GSFC | Halem, M. | NEW YORK UNIVERSITY | NSG 5034 | Isaacson, E. | 31 | 2955 |
| GSFC | Halem, M. | NEW YORK UNIVERSITY | NSG 5045 | Hoffert, M. I. | 31 | 2956 |
| GSFC | McAvoy, N. | N CAR CENTRAL UNIV | NSG 5120 | Dutta, J. M. | 13 | 3056 |
| GSFC | Hirschmann, E. | OHIO STATE UNIV | NAS 5-20521 | Founty, R. A. | 39 | 3111 |
| GSFC | Hirschmann, E. | OHIO STATE UNIV | NAS 5-21983 | Levis, C. A. | 31 | 3112 |
| GSFC | Hirschmann, E. | OHIO STATE UNIV | NAS 5-22575 | Hodge, D. B. | 45 | 3113 |
| GSFC | Zwally, H. J. | OHIO STATE UNIV | NAS 5-23380 | Rayner, J. N. | 39 | 3114 |
| GSFC | Hirschmann, E. | OHIO STATE UNIV | NGR 36-008-080 | Ksienski, A. A. | 45 | 3121 |
| GSFC | Marsh, J. G. | OHIO STATE UNIV | NGR 36-008-161 | Rapp, R. H. | 32 | 3122 |
| GSFC | Bonavito, N. | OHIO UNIVERSITY | NAS 5-20885 | Tanuka, T. | 13 | 3132 |
| GSFC | Kelsall, T. N. | OLD DOMINION UNIV | NSG 5053 | Becher, J. | 19 | 3660 |
| GSFC | Mueller, J. L. | OREGON STATE UNIV | NAS 5-22319 | Zuneveld, R. V. | 33 | 3180 |
| GSFC | Schnetzler, C. C. | PENN STATE U-UNIV PK | NAS 5-22304 | McMurtry, G. J. | 32 | 3228 |
| GSFC | Podwysocki, M. H. | PENN STATE U-UNIV PK | NAS 5-22822 | Gold, D. P. | 32 | 3229 |
| GSFC | Szajna, E. F. | PENN STATE U-UNIV PK | NAS 5-23133 | McMurtry, G. J. | 39 | 3230 |
| GSFC | Halem, M. | POLY INST OF NY | NSG 5041 | Miller, J. E. | 31 | 2969 |
| GSFC | Kupperian, J. E. | PRINCETON UNIVERSITY | NAS 5-1810 | Spitzer, L., Jr. | 11 | 2753 |
| GSFC | Sobieski, S. | PRINCETON UNIVERSITY | NAS 5-20833 | Lowrance, J. L. | 11 | 2754 |
| GSFC | Leckrone, D. S. | PRINCETON UNIVERSITY | NAS 5-22360 | Jenkins, E. B. | 32 | 2755 |
| GSFC | Kelsall, T. N. | PRINCETON UNIVERSITY | NAS 5-22482 | Spitzer, L., Jr. | 12 | 2756 |
| GSFC | Sobieski, S. | PRINCETON UNIVERSITY | NAS 5-22989 | Morton, D. C. | 11 | 2757 |
| GSFC | Sobieski, S. | PRINCETON UNIVERSITY | NAS 5-23284 | Danielson, R. E. | 11 | 2758 |
| GSFC | Tycz, M. | PRINCETON UNIVERSITY | NAS 5-23386 | Lowrance, J. L. | 11 | 2759 |
| GSFC | Tycz, M. | PRINCETON UNIVERSITY | NAS 5-23387 | Lowrance, J. L. | 11 | 2760 |
| GSFC | Kupperian, J. E. | PRINCETON UNIVERSITY | NAS 5-23576 | Spitzer, L., Jr. | 11 | 2761 |
| GSFC | Barbieri, R. W. | PRINCETON UNIVERSITY | NGR 31-001-152 | Lion, P. M. | 42 | 2768 |
| GSFC | Sobieski, S. | PRINCETON UNIVERSITY | NGR 31-001-306 | Morton, D. C. | 11 | 2774 |
| GSFC | Kelsall, T. N. | PRINCETON UNIVERSITY | NSG 5063 | Lowrance, J. L. | 49 | 2786 |
| GSFC | Stonesifer, G. R. | PURDUE UNIVERSITY | NAS 5-20793 | Bauer, M. E. | 59 | 2114 |
| GSFC | Pritchard, J. A. | PURDUE UNIVERSITY | NAS 5-20922 | Phillips, T. L. | 49 | 2115 |
| GSFC | Langel, R. A. | PURDUE UNIVERSITY | NAS 5-22816 | Hinze, W. J. | 32 | 2116 |
| GSFC | Lynch, T. J. | PURDUE UNIVERSITY | NSG 5010 | Wintz, P. A. | 32 | 2140 |
| GSFC | Meese, K. J. | RICE UNIVERSITY | NAS 5-9317 | Anderson, H. R., Jr. | 32 | 3382 |
| GSFC | Taylor, H. A., Jr. | RICE UNIVERSITY | NAS 5-23338 | Cloutier, P. A. | 13 | 3383 |
| GSFC | Halem, M. | ST U NY COL-PURCHASE | NSG 5077 | Tenenbaum, J. | 31 | 3031 |
| GSFC | Short, N. M. | ST LAWRENCE UNIV | NSG 5018 | Erickson, J. M. | 32 | 2988 |
| GSFC | Roosen, R. G. | SAN DIEGO STATE UNIV | NAS 5-23249 | Angione, R. J. | 11 | 1273 |
| GSFC | Reinhardt, V. S. | SO DAKOTA SCHL MINES | NAS 5-23470 | Gruber, C. L. | 45 | 3314 |
| GSFC | Gordon, F. | SO DAKOTA STATE UNIV | NAS 5-20982 | Schmer, F. | 32 | 3315 |
| GSFC | Baker, J. | STANFORD UNIVERSITY | NAS 5-10102 | Villard, O. G. | 45 | 1340 |
| GSFC | Davis, M. A. | STANFORD UNIVERSITY | NAS 5-20871 | Helliwell, R. A. | 13 | 1341 |
| GSFC | Campbell, C. E. | STANFORD UNIVERSITY | NAS 5-20987 | Hofstadter, R. | 11 | 1342 |
| GSFC | Lidston, J. M. | STANFORD UNIVERSITY | NAS 5-21960 | Debra, D. B. | 42 | 1343 |
| GSFC | Ostrow, H. | STANFORD UNIVERSITY | NAS 5-23522 | MacOvski, A. | 19 | 1344 |
| GSFC | Weinreb, M. B. | STANFORD UNIVERSITY | NAS 5-23618 | Walker, A. B., Jr. | 11 | 1345 |
| GSFC | Heath, D. F. | STANFORD UNIVERSITY | NSG 5024 | Wilcox, J. M. | 31 | 1435 |
| GSFC | Schutt, J. B. | STANFORD UNIVERSITY | NSG 5050 | Lyon, R. J. | 32 | 1436 |
| GSFC | Chen, W. T. | ST U NY-DNST MED CTR | NAS 5-22277 | Fealey, R. D. | 52 | 3027 |
| GSFC | Chiu, H. Y. | STATE U NY-STONY BRK | NGL 33-015-082 | Owen, T. | 11 | 3007 |
| GSFC | Hansen, J. E. | STATE U NY-STONY BRK | NGR 33-015-165 | Owen, T. | 31 | 3014 |
| GSFC | Mangus, J. D. | STATE U NY-STONY BRK | NGR 33-015-196 | Stroke, G. W. | 13 | 3017 |
| GSFC | Hansen, J. E. | STATE U NY-STONY BRK | NSG 5015 | Hogan, J. S. | 31 | 3019 |
| GSFC | Stewart, R. W. | STATE U NY-STONY BRK | NSG 5102 | Hogan, J. S. | 31 | 3020 |
| GSFC | Stonesifer, G. R. | TEXAS A&M UNIVERSITY | NAS 5-20796 | Rouse, J. | 59 | 3405 |
| GSFC | Gordon, F. | TEXAS A&M UNIVERSITY | NAS 5-22534 | Harwood, P. | 39 | 3406 |
| GSFC | Damon, E. P. | TEXAS A&M UNIVERSITY | NAS 5-22840 | Simmons, D. B. | 21 | 3407 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| GSFC | Hovis, W. A. | TEXAS A&M UNIVERSITY | NAS 5-22966 | El-Sayed, S. Z. | 31 | 3408 |
| GSFC | Schmugge, T. | TEXAS A&M UNIVERSITY | NAS 5-23458 | Blanchard, B. J. | 39 | 3409 |
| GSFC | McAvoy, N. | UNION COLLEGE | NGR 33-032-004 | Galantowicz, A. | 13 | 3034 |
| GSFC | Broderick, J. C. | UNIV ALASKA-FAIRBNKS | NAS 5-20803 | Gedney, L. | 32 | 1083 |
| GSFC | Oseroff, H. | UNIV ALASKA-FAIRBNKS | NAS 5-20915 | Lent, P. | 39 | 1084 |
| GSFC | Crump, E. | UNIV ALASKA-FAIRBNKS | NAS 5-20959 | Stringer, W. | 33 | 1085 |
| GSFC | Crump, E. W. | UNIV ALASKA-FAIRBNKS | NAS 5-21833 | Belon, A. E. | 31 | 1086 |
| GSFC | Hymowitz, E. W. | UNIV OF ARIZONA | NAS 5-22599 | Low, F. J. | 11 | 1105 |
| GSFC | Browning, R. K. | UNIV OF ARIZONA | NAS 5-23176 | Bowen, T. | 11 | 1106 |
| GSFC | Maran, S. P. | UNIV OF ARIZONA | NCA 5-8 | Dunkelman, L. | 11 | 1121 |
| GSFC | Maran, S. P. | UNIV OF ARIZONA | NCA 5-12 | Sonett, C. P. | 11 | 1122 |
| GSFC | Maran, S. P. | UNIV OF ARIZONA | NCA 5-37 | Dunkelman, L. | 11 | 1123 |
| GSFC | Maran, S. P. | UNIV OF ARIZONA | NCA 5-38 | Burke, J. J. | 19 | 1124 |
| GSFC | Maran, S. P. | UNIV OF ARIZONA | NCA 5-39 | Epps, H. W. | 19 | 1125 |
| GSFC | Pearl, J. C. | UNIV OF ARIZONA | NCA 5-47 | Fink, U. W. | 11 | 1126 |
| GSFC | Maran, S. P. | UNIV OF ARIZONA | NCA 5-62 | Sonett, C. P. | 11 | 1127 |
| GSFC | Sobieski, S. | UNIV OF ARIZONA | NGR 03-002-363 | Serkowski, K. M. | 11 | 1143 |
| GSFC | Sobieski, S. | UNIV OF ARIZONA | NGR 03-002-372 | Gilbert, G. R. | 11 | 1146 |
| GSFC | Heath, D. F. | UNIV OF ARIZONA | NGR 03-002-382 | Herman, B. M. | 31 | 1147 |
| GSFC | Sobieski, S. | UNIV OF ARIZONA | NSG 5001 | Angel, J. R. | 11 | 1152 |
| GSFC | McAvoy, N. | UNIV OF ARIZONA | NSG 5022 | Lamb, W. E., Jr. | 13 | 1153 |
| GSFC | Levine, D. M. | UNIV OF ARIZONA | NSG 5023 | Krider, E. P. | 31 | 1154 |
| GSFC | Hansen, J. E. | UNIV OF ARIZONA | NSG 5043 | Gehrels, A. M. | 11 | 1155 |
| GSFC | Curran, R. J. | UNIV OF ARIZONA | NSG 5046 | Herman, B. M. | 31 | 1156 |
| GSFC | Szajna, E. F. | UNIV ARKANSAS-FAYETV | NAS 5-20810 | MacDonald, H. | 39 | 1174 |
| GSFC | Davis, M. A. | UNIV CALIF-BERKELEY | NAS 5-20079 | Anderson, K. A. | 13 | 1442 |
| GSFC | Davis, M. A. | UNIV CALIF-BERKELEY | NAS 5-20080 | Mozer, F. S. | 13 | 1443 |
| GSFC | Davis, M. A. | UNIV CALIF-BERKELEY | NAS 5-20838 | Anderson, K. A. | 13 | 1444 |
| GSFC | Stonesifer, G. R. | UNIV CALIF-BERKELEY | NAS 5-20969 | Colwell, R. N. | 32 | 1445 |
| GSFC | Davis, M. A. | UNIV CALIF-BERKELEY | NAS 5-20995 | Heckman, H. | 13 | 1446 |
| GSFC | Gallagher, W. F. | UNIV CALIF-BERKELEY | NAS 5-22307 | Anderson, K. A. | 32 | 1447 |
| GSFC | Bissell, E. E., Jr. | UNIV CALIF-BERKELEY | NGR 05-003-239 | Moser, F. S. | 13 | 1475 |
| GSFC | Bissell, E. E., Jr. | UNIV CALIF-BERKELEY | NGR 05-003-450 | Bowyer, C. S. | 11 | 1479 |
| GSFC | Kupperian, J. E. | UNIV CALIF-BERKELEY | NGR 05-003-587 | Spinrad, H. | 11 | 1492 |
| GSFC | Kupperian, J. E. | UNIV CALIF-BERKELEY | NSG 5057 | Bowyer, C. S. | 11 | 1504 |
| GSFC | Chang, T. C. | UNIV CALIF-BERKELEY | NSG 5093 | Angelakos, D. J. | 49 | 1505 |
| GSFC | Nelson, D. | UNIV CALIF-DAVIS | NAS 5-22964 | Coulson, K. L. | 41 | 1513 |
| GSFC | Salomonson, V. V. | UNIV CALIF-DAVIS | NSG 5092 | Algazi, V. R. | 39 | 1528 |
| GSFC | Wales, R. O. | UNIV CALIF-L ANGELES | NAS 5-11674 | McPherron, R. L. | 32 | 1538 |
| GSFC | Davis, M. A. | UNIV CALIF-L ANGELES | NAS 5-20064 | Russell, C. T. | 13 | 1539 |
| GSFC | Halem, M. | UNIV CALIF-L ANGELES | NGR 05-007-328 | Mintz, Y. | 31 | 1567 |
| GSFC | Kupperian, J. E. | UNIV CALIF-L ANGELES | NGR 05-007-489 | Plavec, M. | 11 | 1577 |
| GSFC | Kupperian, J. E. | UNIV CALIF-L ANGELES | NSG 5056 | Peters, C. J. | 11 | 1583 |
| GSFC | Kupperian, J. E. | UNIV CALIF-L ANGELES | NSG 5070 | Jura, M. A. | 11 | 1584 |
| GSFC | Temkin, A. | UNIV CALIF-RIVERSIDE | NGL 05-008-005 | Poe, R. T. | 13 | 1592 |
| GSFC | Berko, F. W. | UNIV CALIF-SAN DIEGO | NAS 5-11080 | Baity, W. A. | 19 | 1595 |
| GSFC | Donley, J. L. | UNIV CALIF-SAN DIEGO | NAS 5-11081 | Peterson, L. E. | 31 | 1596 |
| GSFC | Wales, R. O. | UNIV CALIF-SAN DIEGO | NAS 5-21055 | McIlwain, C. E. | 13 | 1597 |
| GSFC | White, A. F., Jr. | UNIV CALIF-SAN DIEGO | NAS 5-22375 | Peterson, L. E. | 11 | 1598 |
| GSFC | Hymowitz, E. W. | UNIV CALIF-SAN DIEGO | NAS 5-22556 | Soifer, B. T. | 11 | 1599 |
| GSFC | Bartlett, R. O. | UNIV CALIF-SAN DIEGO | NAS 5-23481 | McIlwain, C. E. | 11 | 1600 |
| GSFC | Sobieski, S. | UNIV CALIF-SAN DIEGO | NGR 05-009-239 | Beaver, E. A. | 11 | 1629 |
| GSFC | Carpenter, L. | UNIV CALIF-SAN DIEGO | NGR 05-009-246 | Berger, J. | 39 | 1630 |
| GSFC | Shulman, A. R. | UNIV CALIF-SAN DIEGO | NGR 05-009-260 | Lee, S. H. | 13 | 1632 |
| GSFC | Schaefer, D. H. | UNIV CALIF-SAN DIEGO | NGR 05-009-264 | Lee, S. H. | 49 | 1633 |
| GSFC | Mead, G. D. | UNIV CALIF-SAN DIEGO | NSG 5089 | Jordan, T. H. | 32 | 1638 |
| GSFC | Hovis, W. A. | UNIV CALIF-S BARBARA | NSG 5106 | Estes, J. E. | 33 | 1659 |
| GSFC | Davis, M. A. | UNIV OF CHICAGO | NAS 5-11067 | Simpson, J. A. | 13 | 2052 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| GSFC | Gallagher, W. F. | UNIV OF CHICAGO | NAS 5-20674 | Meyer, P. | 13 | 2053 |
| GSFC | White, A. F., Jr. | UNIV OF CHICAGO | NAS 5-20967 | Meyer, P. | 11 | 2054 |
| GSFC | Shenk, W. E. | UNIV OF CHICAGO | NGR 14-001-008 | Fujita, T. T. | 31 | 2063 |
| GSFC | Kupperian, J. E. | UNIV OF CHICAGO | NSG 5068 | Parker, E. N. | 11 | 2073 |
| GSFC | Lafleur, W. | UNIV OF CHILE | NAS 5-1925 | Danyau, C. R. | 99 | 3818 |
| GSFC | Lancaster, E. R. | UNIV OF CINCINNATI | NGR 36-004-068 | Danielli, J. F. | 11 | 3138 |
| GSFC | Findlay, J. A. | UNIV COLORADO-BOLDR | NAS 5-11405 | Barth, C. A. | 31 | 1759 |
| GSFC | Broderick, J. C. | UNIV COLORADO-BOLDR | NAS 5-20914 | Ives, J. D. | 32 | 1760 |
| GSFC | Szajna, E. F. | UNIV COLORADO-BOLDR | NAS 5-20948 | Krebs, P. | 59 | 1761 |
| GSFC | Worrall, W. | UNIV COLORADO-BOLDR | NAS 5-22409 | Bruner, E. C., Jr. | 31 | 1762 |
| GSFC | Pirraglia, J. | UNIV COLORADO-BOLDR | NAS 5-22440 | Hard, C. | 31 | 1763 |
| GSFC | Underhill, A. B. | UNIV COLORADO-BOLDR | NAS 5-22833 | Conti, P. S. | 11 | 1764 |
| GSFC | Weinreb, M. R. | UNIV COLORADO-BOLDR | NAS 5-22960 | Barth, C. A. | 11 | 1765 |
| GSFC | Underhill, A. B. | UNIV COLORADO-BOLDR | NAS 5-23274 | Linsky, J. L. | 11 | 1766 |
| GSFC | Benson, R. F. | UNIV COLORADO-BOLDR | NAS 5-23346 | Calvert, W. | 31 | 1767 |
| GSFC | Kalet, M. W. | UNIV COLORADO-BOLDR | NAS 5-23577 | Gause, K. | 11 | 1768 |
| GSFC | Bissell, E. E., Jr. | UNIV COLORADO-BOLDR | NGR 06-003-176 | Lillie, C. F. | 11 | 1779 |
| GSFC | Sobieski, S. | UNIV COLORADO-BOLDR | NGR 06-003-219 | Lillie, C. F. | 11 | 1786 |
| GSFC | Kupperian, J. E. | UNIV COLORADO-BOLDR | NSG 5098 | Conti, P. S. | 11 | 1794 |
| GSFC | Bissell, E. E., Jr. | UNIV COLORADO-BOLDR | NSG 5103 | Barth, C. A. | 19 | 1795 |
| GSFC | Friedman, D. S. | UNIV OF CONNECTICUT | NAS 5-22539 | Wilde, D. U. | 99 | 1817 |
| GSFC | Halem, M. | UNIV OF CONNECTICUT | NSG 5075 | Bock, P. | 31 | 1821 |
| GSFC | Crump, E. W. | UNIV OF DELAWARE | NAS 5-20983 | Klemas, V. | 33 | 1831 |
| GSFC | Goldberg, R. | UNIV OF DENVER | NAS 5-22981 | Barcus, J. R. | 19 | 1804 |
| GSFC | Hobbs, R. W. | UNIV OF DENVER | NAS 5-23190 | Edrich, J. | 13 | 1805 |
| GSFC | Kupperian, J. E. | UNIV OF DENVER | NSG 5004 | Lesh, J. R. | 11 | 1813 |
| GSFC | Kupperian, J. E. | UNIV OF DENVER | NSG 5069 | Lesh, J. R. | 11 | 1814 |
| GSFC | Heath, D. F. | UNIV OF FLORIDA | NAS 5-22908 | Green, A. E. | 49 | 1916 |
| GSFC | Peake, H. J. | UNIV OF FLORIDA | NSG 5061 | Bailey, R. L. | 45 | 1930 |
| GSFC | Kupperian, J. E. | UNIV OF FLORIDA | NSG 5116 | Chen, K. W. | 11 | 1931 |
| GSFC | Bissell, E. E., Jr. | UNIV OF HAWAII-MANOA | NGR 12-001-075 | Jeffries, J. T. | 11 | 2027 |
| GSFC | Kupperian, J. E. | UNIV OF HAWAII-MANOA | NSG 5027 | Boesgaard, A. M. | 11 | 2030 |
| GSFC | Kupperian, J. E. | UNIV OF HAWAII-MANOA | NSG 5096 | Boesgaard, A. M. | 11 | 2031 |
| GSFC | Buften, J. L. | UNIV ILLINOIS-URBANA | NSG 5049 | Gardner, C. S. | 19 | 2095 |
| GSFC | Davis, M. A. | UNIV OF IOWA | NAS 5-11064 | Frank, L. A. | 13 | 2169 |
| GSFC | Denwiddie, M. | UNIV OF IOWA | NAS 5-11167 | Gurnett, D. A. | 13 | 2170 |
| GSFC | Eaker, H. L. | UNIV OF IOWA | NAS 5-11265 | Craven, J. D. | 13 | 2171 |
| GSFC | White, C. E. | UNIV OF IOWA | NAS 5-11279 | Gurnett, D. A. | 11 | 2172 |
| GSFC | Davis, M. A. | UNIV OF IOWA | NAS 5-11431 | Gurnett, D. A. | 31 | 2173 |
| GSFC | Davis, M. A. | UNIV OF IOWA | NAS 5-20093 | Gurnett, D. A. | 13 | 2174 |
| GSFC | Davis, M. A. | UNIV OF IOWA | NAS 5-20094 | Frank, L. A. | 13 | 2175 |
| GSFC | Allen, R. F., Jr. | UNIV OF IOWA | NAS 5-20539 | Van Allen, J. A. | 11 | 2176 |
| GSFC | Broderick, J. C. | UNIV OF KANSAS | NAS 5-20943 | Haralick, R. M. | 32 | 2188 |
| GSFC | Eckerman, J. | UNIV OF KANSAS | NAS 5-22325 | Moore, R. K. | 32 | 2189 |
| GSFC | Shiue, J. C. | UNIV OF KANSAS | NAS 5-22384 | Moore, R. K. | 39 | 2190 |
| GSFC | Wexler, R. | UNIV OF KANSAS | NSG 5086 | Eagleman, J. R. | 31 | 2215 |
| GSFC | Davis, M. A. | UNIV MARYLAND-COL PK | NAS 5-11063 | Gloeckler, G. | 13 | 2299 |
| GSFC | Davis, M. A. | UNIV MARYLAND-COL PK | NAS 5-20062 | Gloeckler, G. | 13 | 2300 |
| GSFC | Stief, L. J. | UNIV MARYLAND-COL PK | NAS 5-20834 | Ponnamperuma, C. A. | 12 | 2301 |
| GSFC | Spencer, N. W. | UNIV MARYLAND-COL PK | NAS 5-22537 | Wilkerson, T. W. | 31 | 2302 |
| GSFC | Des Jardins, R. | UNIV MARYLAND-COL PK | NAS 5-22581 | Basili, V. R. | 21 | 2303 |
| GSFC | Findlay, J. A. | UNIV MARYLAND-COL PK | NAS 5-22835 | Messenger, C. J. | 31 | 2304 |
| GSFC | Barsky, J. | UNIV MARYLAND-COL PK | NAS 5-22878 | Agrawala, A. K. | 21 | 2305 |
| GSFC | Conrath, B. J. | UNIV MARYLAND-COL PK | NAS 5-23237 | Ponnamperuma, C. A. | 13 | 2306 |
| GSFC | Trombka, J. I. | UNIV MARYLAND-COL PK | NAS 5-23457 | Sommer, S. E. | 39 | 2307 |
| GSFC | Fischel, D. | UNIV MARYLAND-COL PK | NCA 5-1 | Rosenfeld, A. | 11 | 2312 |
| GSFC | Neupert, W. M. | UNIV MARYLAND-COL PK | NCA 5-3 | Smith, E. | 31 | 2313 |
| GSFC | Kastner, S. O. | UNIV MARYLAND-COL PK | NCA 5-4 | Martin, F. W. | 31 | 2314 |

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| GSFC | Dennis, B. R. | UNIV MARYLAND-COL PK | NCA 5-6 | Rose, W. | 19 | 2315 |
| GSFC | Cannel, C. J. | UNIV MARYLAND-COL PK | NCA 5-7 | Westerhaut, G. | 19 | 2316 |
| GSFC | Fischel, D. | UNIV MARYLAND-COL PK | NCA 5-10 | Rosenfeld, A. | 11 | 2317 |
| GSFC | Fischel, D. | UNIV MARYLAND-COL PK | NCA 5-11 | Harger, R. | 11 | 2318 |
| GSFC | Northrop, T. G. | UNIV MARYLAND-COL PK | NGL 21-002-033 | Smith, E. V. | 31 | 2320 |
| GSFC | Fainberg, J. | UNIV MARYLAND-COL PK | NGL 21-002-367 | Kundu, M. R. | 11 | 2321 |
| GSFC | Brace, L. H. | UNIV MARYLAND-COL PK | NGR 21-002-096 | Matthews, D. L. | 31 | 2326 |
| GSFC | Ogilvie, K. W. | UNIV MARYLAND-COL PK | NGR 21-002-291 | Coplan, M. A. | 13 | 2330 |
| GSFC | Teegarden, B. J. | UNIV MARYLAND-COL PK | NGR 21-002-316 | Gloekler, G. | 13 | 2331 |
| GSFC | Philpotts, J. A. | UNIV MARYLAND-COL PK | NGR 21-002-368 | Weidner, J. R. | 32 | 2334 |
| GSFC | Smith, D. E. | UNIV MARYLAND-COL PK | NGR 21-002-390 | Currie, D. G. | 19 | 2336 |
| GSFC | Rango, A. | UNIV MARYLAND-COL PK | NGR 21-002-399 | Ragan, R. M. | 32 | 2337 |
| GSFC | Marini, J. W. | UNIV MARYLAND-COL PK | NGR 21-002-433 | Harger, R. O. | 33 | 2340 |
| GSFC | Buften, J. L. | UNIV MARYLAND-COL PK | NGR 21-002-444 | Currie, D. G. | 13 | 2341 |
| GSFC | Salomonson, V. V. | UNIV MARYLAND-COL PK | NSG 5017 | Ragan, R. M. | 32 | 2349 |
| GSFC | Clark, T. A. | UNIV MARYLAND-COL PK | NSG 5035 | Richard, J. P. | 11 | 2350 |
| GSFC | Degnan, J. J. | UNIV MARYLAND-COL PK | NSG 5042 | Hochuli, U. E. | 49 | 2351 |
| GSFC | Cressy, P. J. | UNIV MARYLAND-COL PK | NSG 5047 | Sommer, S. E. | 32 | 2352 |
| GSFC | Levine, D. M. | UNIV MARYLAND-COL PK | NSG 5048 | Harger, R. O. | 45 | 2353 |
| GSFC | Kupperian, J. E. | UNIV MARYLAND-COL PK | NSG 5059 | Bell, R. A. | 11 | 2354 |
| GSFC | Fitzmaurice, M. W. | UNIV MARYLAND-COL PK | NSG 5062 | Alley, C. O. | 99 | 2355 |
| GSFC | O'Keefe, J. A. | UNIV MARYLAND-COL PK | NSG 5083 | Pai, S. I. | 19 | 2356 |
| GSFC | Theon, J. S. | UNIV MARYLAND-COL PK | NSG 5084 | Thompson, O. E. | 31 | 2357 |
| GSFC | Philpotts, J. A. | UNIV MARYLAND-COL PK | NSG 5094 | Adler, I. | 32 | 2358 |
| GSFC | Wasilewski, P. J. | UNIV MARYLAND-COL PK | NSG 5112 | Weidner, J. R. | 19 | 2359 |
| GSFC | Nava, D. F. | UNIV MARYLAND-COL PK | NSG 5121 | Weidner, J. R. | 32 | 2360 |
| GSFC | Fitzmaurice, M. W. | UNIV MD-EASTRN SHORE | NGR 21-119-001 | Singh, G. | 19 | 2367 |
| GSFC | Szajna, E. F. | UNIV OF MASS-AMHERST | NAS 5-21871 | Smith, H. P. | 39 | 2535 |
| GSFC | Rolinski, A. J. | UNIV OF MASS-AMHERST | NGL 22-010-018 | Monopoli, R. V. | 45 | 2536 |
| GSFC | Thekaekara, M. P. | UNIV OF MIAMI | NAS 5-22417 | Hiser, H. W. | 19 | 1935 |
| GSFC | Hovis, W. A. | UNIV OF MIAMI | NAS 5-22963 | Gordon, H. R. | 31 | 1936 |
| GSFC | Shive, J. | UNIV OF MIAMI | S-55672A | Unavailable | 45 | 1947 |
| GSFC | Hedin, A. | UNIV MICH-ANN ARBOR | NAS 5-11376 | Carignan, G. R. | 31 | 2556 |
| GSFC | Sing, M. L. | UNIV MICH-ANN ARBOR | NAS 5-11380 | Cliff, R. A. | 31 | 2557 |
| GSFC | Wright, D. U., Jr. | UNIV MICH-ANN ARBOR | NAS 5-20622 | Horvath, J. J. | 31 | 2558 |
| GSFC | Krehbiel, J. P. | UNIV MICH-ANN ARBOR | NAS 5-20806 | Carrignan, G. R. | 31 | 2559 |
| GSFC | Davis, M. A. | UNIV MICH-ANN ARBOR | NAS 5-20839 | Haddock, F. T. | 13 | 2560 |
| GSFC | Cooley, J. E. | UNIV MICH-ANN ARBOR | NAS 5-20939 | Carignan, G. R. | 31 | 2561 |
| GSFC | Spencer, N. W. | UNIV MICH-ANN ARBOR | NAS 5-22441 | Carignan, G. R. | 13 | 2562 |
| GSFC | Krehbiel, J. P. | UNIV MICH-ANN ARBOR | NAS 5-22587 | Brace, L. H. | 31 | 2563 |
| GSFC | Way, S. H. | UNIV MICH-ANN ARBOR | NAS 5-22861 | MacNee, A. B. | 45 | 2564 |
| GSFC | Trainor, J. H. | UNIV MICH-ANN ARBOR | NAS 5-22875 | MacNee, A. B. | 13 | 2565 |
| GSFC | Corrigan, J. P. | UNIV MICH-ANN ARBOR | NAS 5-23006 | Hays, P. B. | 31 | 2566 |
| GSFC | Spencer, N. W. | UNIV MICH-ANN ARBOR | NAS 5-23230 | Carignan, G. R. | 31 | 2567 |
| GSFC | Ross, R. W. | UNIV MICH-ANN ARBOR | NAS 5-23267 | Ponnampuruma, C. A. | 45 | 2568 |
| GSFC | Bissell, E. E., Jr. | UNIV MICH-ANN ARBOR | NGR 23-005-360 | Sharp, W. E. | 13 | 2580 |
| GSFC | Curran, R. J. | UNIV MICH-ANN ARBOR | NSG 5044 | Weil, H. | 31 | 2598 |
| GSFC | Kupperian, J. E. | UNIV MICH-ANN ARBOR | NSG 5097 | Donahue, T. M. | 11 | 2599 |
| GSFC | Kupperian, J. E. | UNIV MICH-ANN ARBOR | NSG 5117 | Donahue, T. M. | 11 | 2600 |
| GSFC | Levine, D. M. | UNIV MICH-ANN ARBOR | S-54214A | Senior, T. B. | 31 | 2606 |
| GSFC | Staff, W. O. | U MINN-MNPLS-ST PAUL | NAS 5-3838 | Epney, O. | 13 | 2618 |
| GSFC | Sizemore, K. O. | U MINN-MNPLS-ST PAUL | NAS 5-11173 | Cahill, L. J., Jr. | 49 | 2619 |
| GSFC | White, C. E. | U MINN-MNPLS-ST PAUL | NAS 5-11310 | Kellogg, P. J. | 11 | 2620 |
| GSFC | Corrigan, J. P. | U MINN-MNPLS-ST PAUL | NAS 5-11438 | Nier, A. O. | 31 | 2621 |
| GSFC | Wainscott, F. H. | U MINN-MNPLS-ST PAUL | NAS 5-11687 | Winckler, J. R. | 49 | 2622 |
| GSFC | Davis, M. A. | U MINN-MNPLS-ST PAUL | NAS 5-20837 | Kellogg, P. J. | 13 | 2623 |
| GSFC | Bissell, E. E., Jr. | U MINN-MNPLS-ST PAUL | NSG 5088 | Winckler, J. R. | 13 | 2642 |
| GSFC | Curran, R. J. | UNIV MO-COLUMBIA | NAS 5-20818 | Schuster, B. G. | 31 | 2688 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| GSFC | Poland, W. B., Jr. | UNIV MO-COLUMBIA | NAS 5-20826 | Noack, T. L. | 45 | 2689 |
| GSFC | Szajna, E. F. | UNIV NEBRASKA-LINCLN | NAS 5-20814 | Carlson, M. P. | 49 | 2721 |
| GSFC | Kalet, M. W. | UNIV NEBRASKA-LINCLN | NAS 5-22903 | Samson, J. R. | 13 | 2722 |
| GSFC | Kalet, M. W. | UNIV NEBRASKA-LINCLN | NAS 5-23125 | Samson, J. A. | 13 | 2723 |
| GSFC | Tee garden, B. J. | UNIV NEW HAMP-DURHAM | NAS 5-11276 | Webber, W. R. | 11 | 2736 |
| GSFC | Wales, R. O. | UNIV NEW HAMP-DURHAM | NAS 5-11694 | Arnoldy, R. L. | 11 | 2737 |
| GSFC | Orwig, L. E. | UNIV NEW HAMP-DURHAM | NAS 5-20884 | Chupp, E. L. | 13 | 2738 |
| GSFC | Donley, J. L. | UNIV NEW HAMP-DURHAM | NAS 5-23493 | Chupp, E. L. | 11 | 2739 |
| GSFC | Hyder, C. L. | UNIV OF NEW MEXICO | NCA 5-31 | Regener, V. H. | 31 | 2821 |
| GSFC | Jones, H. P. | UNIV OF NEW MEXICO | NCA 5-32 | Regener, V. H. | 31 | 2822 |
| GSFC | Hyder, C. L. | UNIV OF NEW MEXICO | NCA 5-34 | Regener, V. H. | 31 | 2823 |
| GSFC | Maran, S. P. | UNIV OF NEW MEXICO | NCA 5-36 | John, R. S. | 31 | 2824 |
| GSFC | Temkin, A. | UNIV OF NEW MEXICO | NCA 5-41 | Beckel, C. L. | 13 | 2825 |
| GSFC | Temkin, A. | UNIV OF NEW MEXICO | NCA 5-55 | Beckel, C. L. | 11 | 2826 |
| GSFC | Jones, H. P. | UNIV OF NEW MEXICO | NCA 5-56 | Regener, V. H. | 11 | 2827 |
| GSFC | Maran, S. P. | UNIV OF NEW MEXICO | NCA 5-57 | St John, R. | 11 | 2828 |
| GSFC | Lynch, T. J. | UNIV OF NOTRE DAME | NSG 5025 | Massey, J. L. | 45 | 2148 |
| GSFC | Durrani, S. H. | UNIV OF PENNSYLVANIA | NAS 5-23479 | Berkowitz, R. S. | 45 | 3264 |
| GSFC | Durrani, S. H. | UNIV OF PENNSYLVANIA | NSG 5064 | Berkowitz, R. S. | 45 | 3267 |
| GSFC | Christie, C. J. | UNIV OF PERU | NASW 7 | Unavailable | 49 | 3825 |
| GSFC | Kostiuk, T. | UNIV OF PITTSBURGH | NAS 5-22892 | Falk, J. | 43 | 3271 |
| GSFC | Temkin, A. | UNIV OF PITTSBURGH | NGL 39-011-035 | Gerjuoy, E. | 13 | 3279 |
| GSFC | Osantowski, J. F. | UNIV OF ROCHESTER | NAS 5-20028 | Baumeister, P. W. | 13 | 3035 |
| GSFC | Kupperian, J. E. | UNIV OF ROCHESTER | NSG 5054 | Savedoff, M. P. | 11 | 3039 |
| GSFC | Kutz, R. L. | UNIV OF SOUTHERN CAL | NAS 5-21505 | Davissan, L. D. | 45 | 1706 |
| GSFC | Kutz, R. L. | UNIV OF SOUTHERN CAL | NGL 05-018-118 | Andrews, H. C. | 45 | 1712 |
| GSFC | Bissell, E. E., Jr. | UNIV OF SOUTHERN CAL | NSG 5108 | Judge, D. L. | 13 | 1719 |
| GSFC | Kunde, V. G. | UNIV TENNESSEE-KNOXV | NAS 5-20672 | Fox, K. | 31 | 3329 |
| GSFC | Schaefer, D. H. | UNIV TENNESSEE-KNOXV | NSG 5002 | Bodenheimer, R. E. | 21 | 3347 |
| GSFC | Velez, C. E. | UNIV TENNESSEE-KNOXV | NSG 5040 | Feagin, T. | 49 | 3348 |
| GSFC | Allen, W. K. | U TENNESSEE-MEMPHIS | NAS 5-22495 | Rochelle, R. W. | 31 | 3350 |
| GSFC | Fuchs, A. J. | UNIV TEXAS-AUSTIN | NAS 5-20946 | Tapley, B. D. | 49 | 3479 |
| GSFC | Hirschmann, E. | UNIV TEXAS-AUSTIN | NAS 5-21982 | Straiton, A. W. | 45 | 3480 |
| GSFC | Hirschmann, E. | UNIV TEXAS-AUSTIN | NAS 5-22576 | Straiton, A. W. | 45 | 3481 |
| GSFC | Sobieski, S. | UNIV TEXAS-AUSTIN | NGR 44-012-260 | Tull, R. G. | 11 | 3503 |
| GSFC | Sobieski, S. | UNIV TEXAS-AUSTIN | NGR 44-012-261 | Nather, R. E. | 11 | 3504 |
| GSFC | Fuchs, A. J. | UNIV TEXAS-AUSTIN | NGR 44-012-269 | Tapley, B. D. | 49 | 3505 |
| GSFC | Kolenkiewicz, R. | UNIV TEXAS-AUSTIN | NGR 44-012-283 | Tapley, B. D. | 32 | 3508 |
| GSFC | Kupperian, J. E. | UNIV TEXAS-AUSTIN | NSG 5005 | Lambert, D. L. | 11 | 3513 |
| GSFC | Kupperian, J. E. | UNIV TEXAS-AUSTIN | NSG 5031 | Parsons, S. B. | 11 | 3514 |
| GSFC | Kupperian, J. E. | UNIV TEXAS-AUSTIN | NSG 5115 | Smith, H. J. | 11 | 3515 |
| GSFC | Corrigan, J. P. | UNIV TEXAS-DALLAS | NAS 5-11406 | Hoffman, J. H. | 31 | 3523 |
| GSFC | Corrigan, J. P. | UNIV TEXAS-DALLAS | NAS 5-11407 | Hanson, W. B. | 31 | 3524 |
| GSFC | Bissell, E. E., Jr. | UNIV TEXAS-DALLAS | NGR 44-004-124 | Heikkila, W. J. | 13 | 3533 |
| GSFC | Brace, L. H. | UNIV TEXAS-DALLAS | NSG 5085 | Heikkila, W. J. | 31 | 3537 |
| GSFC | Brace, L. H. | UNIV TEXAS-DALLAS | NSG 5087 | Hoffman, J. H. | 31 | 3538 |
| GSFC | Kupperian, J. E. | UNIV OF TOLEDO | NGR 36-010-031 | Molnar, M. R. | 11 | 3154 |
| GSFC | Kupperian, J. E. | UNIV OF TOLEDO | NSG 5006 | Molnar, M. R. | 11 | 3158 |
| GSFC | Broderick, J. C. | UNIV OF UTAH | NAS 5-20955 | Nackowski, M. | 32 | 3558 |
| GSFC | Crump, E. W. | UNIV OF VIRGINIA | NAS 5-20999 | Dolan, R. | 39 | 3664 |
| GSFC | Leckrone, D. S. | UNIV OF VIRGINIA | NAS 5-22346 | Counselman, C. C., III | 11 | 3665 |
| GSFC | Morse, S. | UNIV OF VIRGINIA | NAS 5-23496 | Gibson, J. | 99 | 3666 |
| GSFC | Sobieski, S. | UNIV OF VIRGINIA | NGR 47-005-204 | Frederick, L. W. | 11 | 3673 |
| GSFC | Underhill, A. B. | UNIV OF WASHINGTON | NAS 5-22379 | Bohm-Vitense, E. | 11 | 3738 |
| GSFC | Eberstein, I. | UNIV OF WASHINGTON | NSG 5039 | Leovy, C. B. | 31 | 3759 |
| GSFC | Oberright, J. E. | UNIV WISC-MADISON | NAS 5-20068 | Dombrowski, R. M. | 49 | 3775 |
| GSFC | Squires, R. K. | UNIV WISC-MADISON | NAS 5-20974 | Suomi, V. E. | 13 | 3776 |
| GSFC | Theon, J. S. | UNIV WISC-MADISON | NAS 5-21798 | Soumi, V. E. | 31 | 3777 |

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|--------------------|----------------------|-----------------------|------------------------------|---------------------------------|---------------|------------|
| GSFC | Moody, J. C. | UNIV WISC-MADISON | NAS 5-21965 | Suomi, V. E. | 31 | 3778 |
| GSFC | Leckrone, D. S. | UNIV WISC-MADISON | NAS 5-22349 | Anderson, C. M. | 11 | 3779 |
| GSFC | Worrall, W. | UNIV WISC-MADISON | NAS 5-22410 | Kraushaar, W. L. | 31 | 3780 |
| GSFC | Sobieski, S. | UNIV WISC-MADISON | NAS 5-23285 | Bless, R. C. | 11 | 3781 |
| GSFC | Greaves, J. R. | UNIV WISC-MADISON | NAS 5-23296 | Suomi, V. E. | 31 | 3782 |
| GSFC | Greaves, J. R. | UNIV WISC-MADISON | NAS 5-23462 | Suomi, V. E. | 31 | 3783 |
| GSFC | Friedman, D. S. | UNIV WISC-MADISON | NAS 5-23500 | Houston, N. | 53 | 3784 |
| GSFC | Bissell, E. E., Jr. | UNIV WISC-MADISON | NGL 50-002-013 | Code, A. D. | 11 | 3789 |
| GSFC | Halem, M. | UNIV WISC-MADISON | NGR 50-002-215 | Suomi, V. E. | 31 | 3796 |
| GSFC | Sobieski, S. | UNIV WISC-MADISON | NGR 50-002-223 | Roesler, F. L. | 11 | 3797 |
| GSFC | Kupperian, J. E. | UNIV WISC-MADISON | NSG 5100 | Savage, B. D. | 11 | 3801 |
| GSFC | Hirschmann, E. | VIRGINIA POLY INST | NAS 5-21984 | Bostian, C. W. | 45 | 3693 |
| GSFC | Hirschmann, E. | VIRGINIA POLY INST | NAS 5-22577 | Bostian, C. W. | 45 | 3694 |
| GSFC | Fedor, J. V. | VIRGINIA POLY INST | NGR 47-004-126 | Meirovitch, L. | 11 | 3703 |
| GSFC | Ehrmann, C. H. | WASHINGTON TECH INST | NAS 5-22383 | Brach, P. L. | 45 | 1894 |
| GSFC | Hobbs, R. W. | WASHINGTON TECH INST | NCA 5-40 | Kasten, A. | 11 | 1895 |
| GSFC | Ehrmann, C. H. | WASHINGTON TECH INST | NGR 09-059-002 | Brach, P. | 45 | 1896 |
| GSFC | Quann, J. J. | WASHINGTON UNIVERSITY | NAS 5-20680 | Morgan, R. P. | 99 | 2707 |
| GSFC | Reinhardt, V. S. | WILLIAMS COLLEGE | NAS 5-23520 | Crampton, S. B. | 13 | 2541 |
| GSFC | Sobieski, S. | YALE UNIVERSITY | NAS 5-20841 | Van Altena, W. F. | 11 | 1823 |
| GSFC | Schaefer, D. H. | YALE UNIVERSITY | NGL 07-004-005 | Barker, R. C. | 45 | 1824 |
| GSFC | Hansen, J. E. | YESHIVA UNIVERSITY | NGL 33-023-018 | Cameron, A. G. | 11 | 3042 |
| JPL | Trajmar, S. | FLORIDA A&M UNIV | NSG 901 | Jones, H. W. | 13 | 1900 |
| JPL | Huntress, W. T. | PAN AMERICAN UNIV | NGR 44-087-002 | Glaser, F. M. | 32 | 3377 |
| JPL | Estabrook, F. B. | SO UNIV-BATON ROUGE | NGR 19-005-006 | Chakkalakal, D. A. | 11 | 2251 |
| JPL | Bourke, R. D. | WESTERN NEW MEXICO U | NSG 902 | Lundahl, C. R. | 62 | 2840 |
| JSC | Teasdale, W. E. | ALABAMA A&M UNIV | NAS 9-14770 | Weathers, G. D. | 45 | 1000 |
| JSC | Leach, C. S. | BAYLOR COL OF MED | NAS 9-10537 | Campbell, B. O. | 52 | 3356 |
| JSC | Leach, C. S. | BAYLOR COL OF MED | NAS 9-11201 | Johnson, P. C. | 59 | 3357 |
| JSC | Shumate, W. H. | BAYLOR COL OF MED | NAS 9-13452 | Roessler, R. | 53 | 3358 |
| JSC | Leach, C. S. | BAYLOR COL OF MED | NAS 9-13540 | Di Ferrante, N. | 59 | 3359 |
| JSC | Smith, M. C., Jr. | BAYLOR COL OF MED | NAS 9-13737 | Johnson, P. C. | 53 | 3360 |
| JSC | Kimzey, S. L. | BAYLOR COL OF MED | NAS 9-14322 | Criswell, B. S. | 52 | 3361 |
| JSC | Kimzey, S. L. | BAYLOR COL OF MED | NAS 9-14368 | Rich, R. R. | 53 | 3362 |
| JSC | Kimzey, S. L. | BAYLOR COL OF MED | NAS 9-14406 | Martin, R. R. | 53 | 3363 |
| JSC | Kaplan, H. L. | BAYLOR COL OF MED | NAS 9-14407 | Duncan, W. C. | 52 | 3364 |
| JSC | Kimzey, S. L. | BAYLOR COL OF MED | NAS 9-14468 | Criswell, B. S. | 53 | 3365 |
| JSC | Homick, J. L. | BAYLOR COL OF MED | NAS 9-14546 | Igarashi, M. | 51 | 3366 |
| JSC | Kimzey, S. L. | BAYLOR COL OF MED | NAS 9-14603 | Gentry, L. O. | 53 | 3367 |
| JSC | Kimzey, S. L. | BAYLOR COL OF MED | NAS 9-14662 | Johnson, P. C. | 52 | 3368 |
| JSC | Leach, C. S. | BAYLOR COL OF MED | NAS 9-14715 | Suki, W. N. | 59 | 3369 |
| JSC | Morrison, D. R. | BAYLOR COL OF MED | NAS 9-14820 | Twomey, J. J. | 51 | 3370 |
| JSC | Hoffler, G. W. | BAYLOR COL OF MED | NAS 9-15046 | Alexander, J. K. | 53 | 3371 |
| JSC | Phinney, W. C. | BRIGHAM YOUNG UNIV | NAS 9-14499 | Laole, G. H. | 32 | 3552 |
| JSC | Harris, J. W. | BROWN UNIVERSITY | NGR 40-002-123 | Rutherford, M. J. | 32 | 3298 |
| JSC | Hoffman, R. A. | BRYN MAWR COLLEGE | NAS 9-14640 | Oppenheimer, J. M. | 51 | 3195 |
| JSC | Harris, J. W. | BRYN MAWR COLLEGE | NSG 9005 | Crawford, M. L. | 13 | 3196 |
| JSC | Harris, J. W. | CALIF INST OF TECH | NGL 05-002-187 | Silver, L. T. | 12 | 1208 |
| JSC | Harris, J. W. | CALIF INST OF TECH | NGL 05-002-188 | Wasserburg, G. J. | 12 | 1209 |
| JSC | Harris, J. W. | CALIF INST OF TECH | NGL 05-002-190 | Epstein, S. | 13 | 1210 |
| JSC | Harris, J. W. | CALIF INST OF TECH | NGL 05-002-338 | Albee, A. L. | 13 | 1213 |
| JSC | Harris, J. W. | CALIF INST OF TECH | NGR 05-002-333 | Tombrello, T. A. | 13 | 1229 |
| JSC | Harris, J. W. | CALIF INST OF TECH | NSG 9019 | Ahrens, T. J. | 19 | 1247 |
| JSC | Byrns, Z. H. | CITY COLLEGE OF N Y | NAS 9-13642 | Pierson, W. J. | 13 | 2849 |
| JSC | Batson, B. H. | CITY COLLEGE OF N Y | NAS 9-13940 | Schilling, D. L. | 45 | 2850 |
| JSC | Reveley, W. F. | CLEMSON UNIV-CLEMSON | NAS 9-13669 | Gaddis, J. L. | 46 | 3304 |
| JSC | Barnett, T. L. | CLEMSON UNIV-CLEMSON | NAS 9-14006 | Haun, J. R. | 39 | 3305 |
| JSC | Hoffman, R. A. | COLLEGE OF WM & MARY | NGR 47-006-054 | Aceto, H., Jr. | 51 | 3585 |

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| JSC | Barnett, T. L. | COLORADO STATE UNIV | NAS 9-14467 | Smith, J. A. | 39 | 1732 |
| JSC | Byrns, Z. H. | COLORADO STATE UNIV | NAS 9-14765 | Marlatt, W. E. | 31 | 1733 |
| JSC | Hoffman, R. A. | COLORADO STATE UNIV | NGR 06-002-128 | Lett, J. T. | 51 | 1744 |
| JSC | Harris, J. W. | COLORADO STATE UNIV | NSG 9037 | Patton, C. E. | 13 | 1757 |
| JSC | Eichelman, W. F. | COLUMBIA UNIVERSITY | NAS 9-6037 | Langseth, M. G. | 19 | 2873 |
| JSC | Rambaut, P. C. | COLUMBIA UNIVERSITY | NAS 9-14931 | Bassett, C. A. | 53 | 2874 |
| JSC | Harris, J. W. | COLUMBIA UNIVERSITY | NGR 33-008-177 | Horai, K. | 13 | 2878 |
| JSC | Harris, J. W. | COLUMBIA UNIVERSITY | NGR 33-008-199 | Ridley, W. I. | 12 | 2883 |
| JSC | Harris, J. W. | COLUMBIA UNIVERSITY | NSG 9025 | Schreiber, E. | 32 | 2898 |
| JSC | Harris, J. W. | CORNELL UNIVERSITY | NGR 33-010-137 | Gold, T. | 13 | 2915 |
| JSC | Harris, J. W. | FAIRLEIGH-DICKNSON U | NGL 31-006-011 | Adams, J. B. | 13 | 2746 |
| JSC | Harris, J. W. | GEORGIA INST OF TECH | NSG 9040 | Hart, R. K. | 43 | 1999 |
| JSC | Bogard, D. D. | GRAMBLING STATE UNIV | NGR 19-011-012 | Sabu, D. D. | 43 | 2239 |
| JSC | Rummel, J. A. | HARDING COLLEGE | NAS 9-14921 | Olree, H. D. | 53 | 1173 |
| JSC | Harris, J. W. | HARVARD UNIVERSITY | NGL 22-007-247 | Hays, J. F. | 12 | 2395 |
| JSC | Kondo, Y. | HOUSTON BAPTIST UNIV | NGR 44-081-001 | Modisette, J. L. | 11 | 3374 |
| JSC | Kondo, Y. | HOUSTON BAPTIST UNIV | NGR 44-081-005 | Modisette, J. L. | 11 | 3375 |
| JSC | Potter, A. E. | HOUSTON BAPTIST UNIV | NSG 9038 | Morgan, T. H. | 11 | 3376 |
| JSC | Savely, R. T. | HOWARD UNIVERSITY | NSG 9010 | Choudhury, A. K. | 45 | 1893 |
| JSC | Harris, J. W. | INDIANA U-BLOOMINGTN | NGR 15-003-105 | Meinschein, W. G. | 12 | 2110 |
| JSC | Barnett, T. L. | KANSAS STATE UNIV | NAS 9-14533 | Feyerherm, A. M. | 39 | 2180 |
| JSC | Barnett, T. L. | KANSAS STATE UNIV | NAS 9-14899 | Kanemasu, E. T. | 31 | 2181 |
| JSC | Harris, J. W. | LEHIGH UNIVERSITY | NGR 39-007-056 | Goldstein, J. I. | 12 | 3219 |
| JSC | Kondo, Y. | LEHIGH UNIVERSITY | NGR 39-007-061 | McCluskey, G. E., Jr. | 11 | 3220 |
| JSC | Harris, J. W. | LEHIGH UNIVERSITY | NGR 39-007-064 | Sclar, C. B. | 13 | 3221 |
| JSC | Giuli, R. T. | LA STATE U-SHREVEPT | NAS 9-9317 | Moss, T. A. | 11 | 2249 |
| JSC | Eichelman, W. F. | MASS INST OF TECH | NAS 9-12334 | Toksoz, M. N. | 31 | 2440 |
| JSC | Heidelbaugh, N. D. | MASS INST OF TECH | NAS 9-12485 | Flink, J. M. | 53 | 2441 |
| JSC | Harris, J. W. | MASS INST OF TECH | NGR 22-009-540 | Simmons, M. G. | 13 | 2465 |
| JSC | Harris, J. W. | MASS INST OF TECH | NGR 22-009-551 | Burns, R. G. | 12 | 2466 |
| JSC | Harris, J. W. | MASS INST OF TECH | NGR 22-009-646 | Uhlmann, D. R. | 47 | 2469 |
| JSC | Shack, P. E. | MEMPHIS ST UNIV | NAS 9-13878 | Morris, C. F. | 45 | 3321 |
| JSC | Homick, J. L. | MIAMI UNIVERSITY | NAS 9-14538 | Parker, D. E. | 59 | 3108 |
| JSC | Nitschke, H. A. | NEW MEX ST U-LAS CR | NAS 9-95469 | Carver, K. | 47 | 2805 |
| JSC | Henize, K. G. | NORTHWESTERN UNIV | NAS 9-12280 | Telford, J. W. | 11 | 2038 |
| JSC | Nachtwey, D. S. | OREGON STATE UNIV | NAS 9-14860 | Van Dyke, H. | 51 | 3181 |
| JSC | Harris, J. W. | OREGON STATE UNIV | NGL 38-002-039 | Schmitt, R. A. | 13 | 3183 |
| JSC | Potter, A. E. | PAN AMERICAN UNIV | NSG 9033 | Lemaster, E. W. | 39 | 3378 |
| JSC | Potter, A. E. | PRAIRIE VIEW A&M U | NSG 9006 | Sohel, M. S. | 39 | 3380 |
| JSC | Harris, J. W. | PRINCETON UNIVERSITY | NGL 31-001-283 | Hollister, L. S. | 11 | 2766 |
| JSC | Joosten, R. E. | PURDUE UNIVERSITY | NAS 9-13380 | Hoffer, R. M. | 39 | 2119 |
| JSC | Potter, A. E. | PURDUE UNIVERSITY | NAS 9-14016 | Landgrebe, D. A. | 39 | 2120 |
| JSC | Grandfield, A. L. | PURDUE UNIVERSITY | NAS 9-14970 | Landgrebe, D. A. | 39 | 2121 |
| JSC | Harris, J. W. | PURDUE UNIVERSITY | NGL 15-005-175 | Taylor, L. A. | 13 | 2124 |
| JSC | Harris, J. W. | PURDUE UNIVERSITY | NGR 15-005-157 | Meyer, H. O. | 13 | 2128 |
| JSC | Harris, J. W. | QUEENS COLLEGE | NSG 9022 | Coch, N. K. | 32 | 2970 |
| JSC | Kissinger, L. D. | RICE UNIVERSITY | NAS 9-11827 | Davis, S. H. | 43 | 3387 |
| JSC | Baker, K. | RICE UNIVERSITY | NAS 9-12776 | Lynn, M. S. | 21 | 3388 |
| JSC | Zieglschmid, J. F. | RICE UNIVERSITY | NAS 9-12912 | Ward, C. H. | 51 | 3389 |
| JSC | Harris, J. W. | RICE UNIVERSITY | NGL 44-006-127 | Heymann, D. | 32 | 3392 |
| JSC | Hudson, R. D. | RICE UNIVERSITY | NGR 44-006-156 | Stebbings, R. F. | 13 | 3394 |
| JSC | Horz, F. | ST MARY'S UNIVERSITY | NSG 9039 | Hanss, R. E. | 32 | 3400 |
| JSC | Echelkamp, R. E. | SO UNIV-BATON ROUGE | NSG 9030 | Grewal, G. S. | 45 | 2258 |
| JSC | Leach, C. S. | STANFORD UNIVERSITY | NAS 9-14716 | Davidson, J. M. | 59 | 1348 |
| JSC | Rummel, J. A. | STANFORD UNIVERSITY | NGR 05-020-632 | Lederberg, J. | 53 | 1406 |
| JSC | Rummel, J. A. | STATE UNIV NY-ALBANY | NSG 9028 | Farhi, L. E. | 51 | 2997 |
| JSC | Harris, J. W. | STATE UNIV NY-BUFFAL | NGL 33-183-013 | Cadenhead, D. A. | 12 | 3000 |
| JSC | Hardee, S. N. | ST U NY COL-GENESE | NAS 9-12770 | Young, R. A. | 32 | 3029 |

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| JSC | Harris, J. W. | STATE U NY-STONY BRK | NGL 33-015-130 | Bence, A. E. | 13 | 3008 |
| JSC | Harris, J. W. | STATE U NY-STONY BRK | NGL 33-015-174 | Schaeffer, O. A. | 12 | 3009 |
| JSC | Harris, J. W. | STATE U NY-STONY BRK | NSG 9013 | Hartwig, J. B. | 32 | 3025 |
| JSC | Harris, J. W. | STATE U NY-STONY BRK | NSG 9044 | Papike, J. J. | 13 | 3026 |
| JSC | Leach, C. S. | ST U NY-UPST MED CTR | NAS 9-11846 | Miller, M. | 59 | 3028 |
| JSC | Nachtwey, D. S. | TEMPLE UNIVERSITY | NAS 9-14979 | Urbach, F. | 51 | 3262 |
| JSC | Smith, M. C., Jr. | TEXAS A&M UNIVERSITY | NAS 9-12434 | Burns, E. E. | 59 | 3417 |
| JSC | Broune, I. D. | TEXAS A&M UNIVERSITY | NAS 9-13894 | Hartley, H. O. | 21 | 3418 |
| JSC | Buras, N. T. | TEXAS A&M UNIVERSITY | NAS 9-13904 | Rouse, J. W., Jr. | 39 | 3419 |
| JSC | Potter, A. E. | TEXAS A&M UNIVERSITY | NAS 9-14197 | Rouse, J. L. | 39 | 3420 |
| JSC | Barnett, T. L. | TEXAS A&M UNIVERSITY | NAS 9-14470 | Harlan, C. | 39 | 3421 |
| JSC | Hillje, E. R. | TEXAS A&M UNIVERSITY | NAS 9-14478 | Cavin, R. K., III | 41 | 3422 |
| JSC | Nitschke, H. A. | TEXAS A&M UNIVERSITY | NAS 9-14493 | Schell, J. A. | 49 | 3423 |
| JSC | Nolin, F. D. | TEXAS A&M UNIVERSITY | NAS 9-14556 | Guseman, L. F., Jr. | 21 | 3424 |
| JSC | Browne, I. D. | TEXAS A&M UNIVERSITY | NAS 9-14689 | Guseman, L. F., Jr. | 21 | 3425 |
| JSC | Hatcher, N. W. | TEXAS A&M UNIVERSITY | NAS 9-14817 | Newton, R. W. | 13 | 3426 |
| JSC | Nitschke, H. A. | TEXAS A&M UNIVERSITY | NAS 9-14821 | Schell, J. A. | 49 | 3427 |
| JSC | Blanchard, D. | TEXAS A&M UNIVERSITY | NAS 9-14828 | Randall, J. D. | 39 | 3428 |
| JSC | Buras, N. T. | TEXAS A&M UNIVERSITY | NAS 9-14875 | Schell, J. A. | 32 | 3429 |
| JSC | Mason, C. C. | TEXAS A&M UNIVERSITY | NAS 9-14898 | Blanchard, B. J. | 39 | 3430 |
| JSC | Hay, D. H. | TEXAS A&M UNIVERSITY | NAS 9-14904 | Guseman, L. F., Jr. | 21 | 3431 |
| JSC | Day, J. L. | TEXAS TECH UNIV | NAS 9-11162 | Portnoy, W. M. | 45 | 3441 |
| JSC | Day, J. L. | TEXAS TECH UNIV | NAS 9-14438 | Portnoy, W. M. | 53 | 3442 |
| JSC | Jackson, M. M. | TUFTS UNIVERSITY | NGR 22-012-026 | Spodick, D. H. | 53 | 2531 |
| JSC | French, B. O. | TUSKEGEE INSTITUTE | NAS 9-13844 | Sellers, J. P. | 46 | 1035 |
| JSC | Barnes, C. M. | UNIV HOUSTON-CL LAKE | NAS 9-14874 | Schuhmann, R. E. | 59 | 3475 |
| JSC | Harris, J. W. | UNIV HOUSTON-CL LAKE | NSG 9043 | Blanford, G. E. | 13 | 3476 |
| JSC | Baldwin, R. R. | UNIV ALASKA-FAIRBNKS | NAS 9-13945 | Wescott, E. M. | 32 | 1088 |
| JSC | Kimsey, S. L. | UNIV OF ARIZONA | NAS 9-14692 | Bartels, P. H. | 59 | 1113 |
| JSC | Harris, J. W. | UNIV OF ARIZONA | NGR 03-002-388 | Drake, M. J. | 12 | 1148 |
| JSC | Potter, A. E. | UNIV ARKANSAS-FAYETV | NAS 9-14251 | Waite, W. P. | 19 | 1177 |
| JSC | Hardee, S. N. | U ARKANSAS-MONTICELO | NAS 9-13196 | Dehon, R. A. | 13 | 1182 |
| JSC | Forbes, C. D. | UNIV CALIF-BERKELEY | NAS 9-14419 | Colwell, R. N. | 39 | 1450 |
| JSC | Patteson, A. W. | UNIV CALIF-BERKELEY | NAS 9-14452 | Lauer, D. | 39 | 1451 |
| JSC | Garcia, J. G. | UNIV CALIF-BERKELEY | NAS 9-14565 | Colwell, R. N. | 39 | 1452 |
| JSC | Harris, J. W. | UNIV CALIF-BERKELEY | NGL 05-003-409 | Reynolds, J. H. | 13 | 1472 |
| JSC | Harris, J. W. | UNIV CALIF-BERKELEY | NGL 05-003-410 | Price, P. B. | 12 | 1473 |
| JSC | Harris, J. W. | UNIV CALIF-BERKELEY | NGR 05-003-435 | Burlingame, A. L. | 13 | 1478 |
| JSC | Smith, M. C., Jr. | UNIV CALIF-DAVIS | NAS 9-13589 | Vogel, J. M. | 52 | 1514 |
| JSC | Huffstetler, W. J. | UNIV CALIF-DAVIS | NAS 9-14696 | Owens, E. W. | 45 | 1515 |
| JSC | Harris, J. W. | UNIV CALIF-L ANGELES | NGL 05-007-330 | Warren, N. | 13 | 1559 |
| JSC | Harris, J. W. | UNIV CALIF-L ANGELES | NGL 05-007-367 | Wasson, J. T. | 12 | 1560 |
| JSC | Harris, J. W. | UNIV CALIF-L ANGELES | NGR 05-007-289 | Kaplan, I. R. | 13 | 1564 |
| JSC | Harris, J. W. | UNIV CALIF-SAN DIEGO | NGL 05-009-148 | Arnold, J. R. | 12 | 1613 |
| JSC | Harris, J. W. | UNIV CALIF-SAN DIEGO | NGL 05-009-150 | Marti, K. | 12 | 1614 |
| JSC | Nitschke, H. A. | UNIV CALIF-S BARBARA | NAS 9-14816 | Simonett, D. S. | 33 | 1654 |
| JSC | Harris, J. W. | UNIV CALIF-S BARBARA | NGR 05-010-081 | Tilton, G. R. | 32 | 1658 |
| JSC | Harris, J. W. | UNIV CALIF-S BARBARA | NSG 9020 | Fuller, M. D. | 19 | 1661 |
| JSC | Harris, J. W. | UNIV CALIF-S CRUZ | NSG 9034 | Papike, J. J. | 39 | 1663 |
| JSC | Harris, J. W. | UNIV OF CHICAGO | NGL 14-001-167 | Anders, E. | 13 | 2059 |
| JSC | Harris, J. W. | UNIV OF CHICAGO | NGL 14-001-169 | Clayton, R. N. | 12 | 2060 |
| JSC | Harris, J. W. | UNIV OF CHICAGO | NGL 14-001-171 | Smith, J. V. | 13 | 2061 |
| JSC | Harris, J. W. | UNIV COLORADO-BOLDR | NGR 06-003-181 | Larson, E. E. | 13 | 1781 |
| JSC | Harris, J. W. | UNIV COLORADO-BOLDR | NSG 9036 | Spetzler, H. A. | 32 | 1802 |
| JSC | Smith, M. C., Jr. | UNIV HOUSTON-HOUSTON | NAS 9-11676 | Cox, J. E. | 59 | 3446 |
| JSC | Satterfield, J. M. | UNIV HOUSTON-HOUSTON | NAS 9-11845 | Hayre, H. S. | 49 | 3447 |
| JSC | Baker, K. | UNIV HOUSTON-HOUSTON | NAS 9-12777 | Decell, H. P., Jr. | 21 | 3448 |
| JSC | Hoffman, R. A. | UNIV HOUSTON-HOUSTON | NAS 9-13262 | Hanson, W. B. | 51 | 3449 |

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| JSC | Golden, R. L. | UNIV HOUSTON-HOUSTON | NAS 9-14209 | Sheldon, W. R. | 11 | 3450 |
| JSC | Eggleston, J. M. | UNIV HOUSTON-HOUSTON | NAS 9-14347 | Michalopoulos, C. D. | 42 | 3451 |
| JSC | Loper, L. R. | UNIV HOUSTON-HOUSTON | NAS 9-14384 | Pitts, D. G. | 59 | 3452 |
| JSC | Schneider, H. J. | UNIV HOUSTON-HOUSTON | NAS 9-14534 | Zlatkis, A. | 53 | 3453 |
| JSC | Schneider, H. J. | UNIV HOUSTON-HOUSTON | NAS 9-14629 | Zlatkis, A. | 52 | 3454 |
| JSC | Bailey, J. V. | UNIV HOUSTON-HOUSTON | NAS 9-14652 | Pinsky, L. S. | 13 | 3455 |
| JSC | Graves, R. C. | UNIV HOUSTON-HOUSTON | NAS 9-14857 | Henney, H. R., Jr. | 51 | 3456 |
| JSC | Heyborn, R. P. | UNIV HOUSTON-HOUSTON | NAS 9-15000 | Decell, H. P., Jr. | 21 | 3457 |
| JSC | Bailey, J. V. | UNIV HOUSTON-HOUSTON | NGL 44-005-041 | Goodman, C. | 13 | 3463 |
| JSC | Eandi, B. K. | UNIV HOUSTON-HOUSTON | NGL 44-005-090 | Huang, C. J. | 49 | 3464 |
| JSC | Kondo, Y. | UNIV HOUSTON-HOUSTON | NGR 44-005-137 | Hildebrandt, A. F. | 13 | 3469 |
| JSC | Hoffman, R. A. | UNIV HOUSTON-HOUSTON | NSG 9042 | Coules, J. R. | 51 | 3474 |
| JSC | Amsbury, D. L. | UNIV OF IOWA | NAS 9-13313 | Hoppin, R. A. | 32 | 2177 |
| JSC | Hatcher, N. M. | UNIV OF KANSAS | NAS 9-10261 | Ulaby, F. T. | 39 | 2191 |
| JSC | Buras, N. T. | UNIV OF KANSAS | NAS 9-14052 | Ulaby, F. T. | 39 | 2192 |
| JSC | Patteson, A. W. | UNIV OF KANSAS | NAS 9-14453 | Haralick, R. M. | 39 | 2193 |
| JSC | Jackson, M. M. | UNIV OF KENTUCKY | NAS 9-14392 | Lafferty, J. F. | 46 | 2226 |
| JSC | Harris, J. W. | UNIV OF KENTUCKY | NGR 18-001-058 | Ehmann, W. D. | 13 | 2228 |
| JSC | Hoffman, R. A. | UNIV OF LOUISVILLE | NAS 9-14632 | Keefe, J. R. | 51 | 2234 |
| JSC | Eichelman, W. F. | UNIV MARYLAND-COL PK | NAS 9-5886 | Weber, J. | 19 | 2308 |
| JSC | Harris, J. W. | UNIV OF MASS-AMHERST | NGL 22-010-089 | Haggerty, S. E. | 13 | 2539 |
| JSC | Leach, C. S. | UNIV OF MIAMI | NGR 10-007-097 | Epstein, M. | 52 | 1943 |
| JSC | Stanley, J. F. | UNIV MICH-ANN ARBOR | NSG 9031 | Anderson, J. G. | 31 | 2605 |
| JSC | Smith, M. C., Jr. | U MINN-MNPLS-ST PAUL | NAS 9-12560 | Labuza, T. P. | 59 | 2626 |
| JSC | Harris, J. W. | U MINN-MNPLS-ST PAUL | NGL 24-005-225 | Alexander, E. C., Jr. | 13 | 2630 |
| JSC | Harris, J. W. | U MINN-MNPLS-ST PAUL | NGR 24-005-223 | Murthy, V. R. | 13 | 2634 |
| JSC | Harris, J. W. | U MINN-MNPLS-ST PAUL | NGR 24-005-248 | Banerjee, S. K. | 32 | 2635 |
| JSC | Dawson, C. T. | UNIV MO-ROLLA | NAS 9-14848 | Tranter, W. H. | 45 | 2697 |
| JSC | Harris, J. W. | UNIV OF NEW MEXICO | NGL 32-004-063 | Keil, K. | 12 | 2831 |
| JSC | Leach, C. S. | UNIV N CAR-CHPL HILL | NAS 9-14697 | Gitelman, H. J. | 59 | 3075 |
| JSC | Teegarden, D. L., Jr. | UNIV OREGON-EUGENE | NAS 9-9690 | Blank, H. R. | 32 | 3186 |
| JSC | Harris, J. W. | UNIV OREGON-EUGENE | NGL 38-003-022 | Weill, D. F. | 13 | 3188 |
| JSC | Horrigan, D. J. | UNIV OF PENNSYLVANIA | NSG 9011 | Lambertson, C. J. | 51 | 3270 |
| JSC | Eichelman, W. F. | UNIV OF PITTSBURGH | NAS 9-13803 | Donahue, T. M. | 13 | 3273 |
| JSC | Harris, J. W. | UNIV OF PITTSBURGH | NGL 39-011-160 | Fuller, M. | 13 | 3281 |
| JSC | Bailey, J. V. | UNIV SAN FRANCISCO | NAS 9-12466 | Benton, E. V. | 51 | 1666 |
| JSC | Taylor, G. R. | UNIV SAN FRANCISCO | NAS 9-14396 | Benton, E. V. | 51 | 1667 |
| JSC | Unavailable | UNIV OF SOUTHERN CAL | NAS 9-6164 | Unavailable | 13 | 1708 |
| JSC | Harris, J. W. | UNIV TENNESSEE-KNOXV | NGL 43-001-140 | Taylor, L. A. | 11 | 3339 |
| JSC | Kaplan, H. L. | U TENNESSEE-MEMPHIS | NAS 9-14918 | Austian, J. | 12 | 3351 |
| JSC | Potter, A. E. | UNIV TEXAS-AUSTIN | NAS 9-12568 | Barnes, T. G., III | 11 | 3485 |
| JSC | Goodrich, W. D. | UNIV TEXAS-AUSTIN | NAS 9-13680 | Bertin, J. J. | 41 | 3486 |
| JSC | Eichelman, W. F. | UNIV TEXAS-AUSTIN | NAS 9-14405 | Duennebie, F. D. | 32 | 3487 |
| JSC | Richard, R. R. | UNIV TEXAS-AUSTIN | NAS 9-14491 | Hartwig, W. H. | 49 | 3488 |
| JSC | Eichelman, W. F. | UNIV TEXAS-AUSTIN | NAS 9-14810 | Latham, G. V. | 13 | 3489 |
| JSC | Fenner, R. G. | UNIV TEXAS-AUSTIN | NAS 9-14892 | Beckner, F. | 45 | 3490 |
| JSC | Eandi, B. K. | UNIV TEXAS-AUSTIN | NGL 44-012-133 | McKetta, J. J. | 49 | 3494 |
| JSC | Harris, J. W. | UNIV TEXAS-AUSTIN | NSG 9021 | Gose, W. A. | 32 | 3520 |
| JSC | Eichelman, W. F. | UNIV TEXAS-DALLAS | NAS 9-12074 | Hoffman, J. H. | 19 | 3526 |
| JSC | Baker, K. | UNIV TEXAS-DALLAS | NAS 9-13512 | Odell, P. L. | 21 | 3527 |
| JSC | Kimzey, S. L. | UNIV TEXAS-GALVESTON | NAS 9-13102 | Lockhart, L. H. | 53 | 3544 |
| JSC | Reschke, M. F. | UNIV TEXAS-GALVESTON | NAS 9-14641 | Correia, M. J. | 69 | 3545 |
| JSC | Hoffler, G. W. | U TEX HEALTH CTR-SA | NGR 44-094-003 | Earley, L. E. | 53 | 3548 |
| JSC | Hoffler, G. W. | U TEX HEALTH CTR-DAL | NSG 9026 | Blomquist, C. G. | 52 | 3547 |
| JSC | Kaplan, H. L. | UNIV OF UTAH | NAS 9-14809 | Baldwin, R. C. | 59 | 3562 |
| JSC | Harris, J. W. | UNIV OF UTAH | NSG 9024 | Nash, W. P. | 32 | 3572 |
| JSC | Rambaut, P. C. | UNIV OF WASHINGTON | NAS 9-13029 | Nelp, W. B. | 59 | 3739 |
| JSC | Horz, F. | UNIV OF WASHINGTON | NAS 9-13743 | Brownlee, D. E. | 32 | 3740 |

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| JSC | Harris, J. W. | UNIV OF WASHINGTON | NGR 48-002-149 | Ghose, S. | 13 | 3754 |
| JSC | Harris, J. W. | UNIV OF WASHINGTON | NSG 9032 | Adams, J. D. | 32 | 3763 |
| JSC | Nachtwey, D. S. | UTAH STATE UNIV | NAS 9-14871 | Caldwell, M. M. | 51 | 3574 |
| JSC | Day, J. L. | VIRGINIA POLY INST | NAS 9-14862 | Rivers, D. B. | 49 | 3696 |
| JSC | Harris, J. W. | WASHINGTON UNIVERSTY | NGL 26-008-065 | Walker, R. M. | 13 | 2711 |
| JSC | Hoffman, R. A. | WASHINGTON UNIVERSTY | NSG 9035 | Pickard, B. G. | 51 | 2718 |
| KSC | Hammond, T. M. | BETHUNE-COOKMAN COL | NGR 10-022-001 | Poonai, P. | 39 | 1897 |
| KSC | Schehl, T. A. | FLORIDA A&M UNIV | NGR 10-010-002 | Cottrell, P. T. | 39 | 1898 |
| KSC | Malone, J. E. | FLORIDA A&M UNIV | NSG 805 | Harrell, B. E. | 59 | 1899 |
| KSC | Franks, H. H. | FLORIDA INST OF TECH | NAS10-8399 | Bowman, T. E. | 43 | 1903 |
| KSC | Lee, W. H. | FLORIDA INST OF TECH | NGR 10-015-008 | Weber, H. P. | 39 | 1904 |
| KSC | Burton, R. | FLORIDA TECH UNIV | NAS10-8934 | Osborne, J. | 39 | 1911 |
| KSC | Buchanan, P. | FLORIDA TECH UNIV | NAS10-8986 | Vickers, D. H. | 39 | 1912 |
| KSC | Lee, W. H. | FLORIDA TECH UNIV | NGR 10-019-004 | Sweet, H. C. | 39 | 1913 |
| KSC | Lee, W. H. | FLORIDA TECH UNIV | NGR 10-019-009 | St John, R. | 39 | 1914 |
| KSC | Wright, M. I. | GEORGIA INST OF TECH | NAS10-8375 | Webb, R. P. | 45 | 1979 |
| KSC | Morrison, J. D. | KENTUCKY STATE UNIV | NSG 801 | Kloek, G. | 59 | 2222 |
| KSC | Bryan, C. J. | NM HIGHLANDS UNIV | NSG 804 | Clark, R. D. | 12 | 2795 |
| KSC | Schlimmer, G. E. | NEW MEX ST U-LAS CR | NAS10-7399 | Bumgarner, R. A. | 45 | 2807 |
| KSC | Schlimmer, G. E. | NEW MEX ST U-LAS CR | NAS10-8712 | Unavailable | 19 | 2808 |
| KSC | Perkins, E. E. | SAVANNAH STATE COL | NSG 803 | Ghuman, G. S. | 39 | 2011 |
| KSC | Bostwick, L. G. | SOUTHEASTN OKLA ST U | NSG 802 | Robinson, J. L. | 51 | 3172 |
| KSC | Toft, P. D. | UNIV OF ARIZONA | NAS10-8518 | Krider, E. P. | 31 | 1114 |
| KSC | Toft, P. D. | UNIV OF FLORIDA | NAS10-8774 | Bartholic, J. F. | 39 | 1918 |
| KSC | Toft, P. D. | UNIV OF FLORIDA | NAS10-8920 | Bartholic, J. F. | 39 | 1919 |
| KSC | Toft, P. D. | UNIV OF FLORIDA | NGR 10-005-169 | Uman, M. A. | 31 | 1926 |
| KSC | Bland, R. A. | UNIV OF MIAMI | NAS10-8600 | Hirschberg, J. G. | 39 | 1937 |
| KSC | Bland, R. A. | UNIV OF MIAMI | NAS10-8740 | Veziroglu, T. N. | 39 | 1938 |
| KSC | Bland, R. A. | UNIV OF MIAMI | NAS10-8795 | Hirschberg, J. G. | 39 | 1939 |
| KSC | Bland, R. A. | UNIV OF MIAMI | NAS10-8926 | Lee, S. S. | 39 | 1940 |
| KSC | Bland, R. A. | UNIV OF MIAMI | NAS10-8954 | Hirschberg, J. G. | 39 | 1941 |
| KSC | Jorolan, A. E. | UNIV SO CAROLINA-COL | NAS10-8354 | Bonnell, R. D. | 43 | 3310 |
| LARC | Johnson, R. W. | AMERICAN UNIVERSITY | NAS 1-12209 | Anderson, R. R. | 39 | 1834 |
| LARC | Cofer, W. R., III | BENNETT COLLEGE-NC | NSG 1032 | Greaux, A. E. | 12 | 3045 |
| LARC | Yates, E. C., Jr. | BOSTON UNIVERSITY | NGR 22-004-030 | Morino, L. | 41 | 2375 |
| LARC | Wilson, J. W. | BROOKLYN COLLEGE | NSG 1166 | Franco, V. | 13 | 2846 |
| LARC | Williams, T. S., Jr. | BROWN UNIVERSITY | NAS 1-9680 | Mutch, T. A. | 99 | 3293 |
| LARC | Walker, G. H. | BROWN UNIVERSITY | NGR 40-002-093 | Loferski, J. J. | 13 | 3296 |
| LARC | Maestrello, L. | BROWN UNIVERSITY | NSG 1076 | Liu, J. T. | 39 | 3299 |
| LARC | Kelly, W. L., IV | BROWN UNIVERSITY | NSG 1222 | Patterson, W. R., III | 45 | 3300 |
| LARC | Williams, T. S., Jr. | CALIF INST OF TECH | NAS 1-9703 | Anderson, D. L. | 39 | 1186 |
| LARC | Williams, T. S., Jr. | CALIF INST OF TECH | NAS 1-12311 | Horowitz, N. H. | 51 | 1187 |
| LARC | Davis, R. C. | CALIF INST OF TECH | NSG 1005 | Babcock, C. D., Jr. | 41 | 1232 |
| LARC | Young, W. H., Jr. | CAL STATE U-LG BEACH | NAS 1-14276 | Cebeci, T. | 41 | 1263 |
| LARC | Walker, G. H. | CARNEGIE-MELLON UNIV | NGR 39-087-021 | Feucht, D. L. | 13 | 3199 |
| LARC | Exton, R. J. | CHESAPEAKE COLLEGE | NSG 1096 | Paul, F. W. | 33 | 2273 |
| LARC | Morris, G. J. | CHRISTPHR NEWPRT COL | NAS 1-13423 | Roby, A. B. | 41 | 3580 |
| LARC | Jewel, J. W., Jr. | CHRISTPHR NEWPRT COL | NAS 1-13913 | Unavailable | 41 | 3581 |
| LARC | Morris, G. J. | CHRISTPHR NEWPRT COL | NAS 1-14034 | Roby, A. B. | 41 | 3582 |
| LARC | Montgomery, R. C. | CITY COLLEGE OF N Y | NSG 1169 | Mekel, R. | 41 | 2854 |
| LARC | Turner, R. E. | CITY COLLEGE OF N Y | NSG 1305 | Chen, C. M. | 31 | 2855 |
| LARC | Abel, I. | CLEMSON UNIV-CLEMSON | NSG 1125 | Rudisill, C. S. | 41 | 3306 |
| LARC | Poe, C. C., Jr. | CLEMSON UNIV-CLEMSON | NSG 1297 | Goree, J. G. | 46 | 3307 |
| LARC | Martin, D. J. | COLLEGE OF WM & MARY | NAS 1-11958 | Aceto, H., Jr. | 99 | 3583 |
| LARC | Anderson, A. F. | COLLEGE OF WM & MARY | NGL 47-006-058 | Rublein, G. T. | 99 | 3584 |
| LARC | Breckenridge, R. A. | COLLEGE OF WM & MARY | NSG 1089 | Moriarity, J. A. | 13 | 3586 |
| LARC | Young, P. R. | COLLEGE OF WM & MARY | NSG 1095 | Kranbuehl, D. E. | 12 | 3587 |
| LARC | Russell, J. M., III | COLLEGE OF WM & MARY | NSG 1203 | Park, J. H. | 31 | 3588 |

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| LARC | Cofer, W. R., III | COLLEGE OF WM & MARY | NSG 1204 | Tyree, S. Y., Jr. | 12 | 3589 |
| LARC | Sweet, G. E. | COLORADO STATE UNIV | NAS 1-12106 | Vonder Haar, T. H. | 31 | 1721 |
| LARC | Costen, R. C. | COLORADO STATE UNIV | NSG 1215 | Sinclair, P. C. | 31 | 1748 |
| LARC | Mixson, J. S. | COLUMBIA UNIVERSITY | NSG 1059 | Vaicaitis, R. | 41 | 2885 |
| LARC | Cawthorn, J. M. | COLUMBIA UNIVERSITY | NSG 1115 | Galanter, E. | 69 | 2886 |
| LARC | Powell, C. A. | COLUMBIA UNIVERSITY | NSG 1164 | Borsky, P. N. | 49 | 2887 |
| LARC | Williams, T. S., Jr. | CORNELL UNIVERSITY | NAS 1-9683 | Sagan, C. E. | 99 | 2899 |
| LARC | Allario, F. | CORNELL UNIVERSITY | NGL 33-010-064 | Cool, T. A. | 13 | 2908 |
| LARC | Jobson, D. J. | CORNELL UNIVERSITY | NSG 1263 | Harwit, M. O. | 13 | 2926 |
| LARC | Sweet, G. E. | DREXEL UNIVERSITY | NAS 1-11871 | House, F. B. | 31 | 3203 |
| LARC | Russell, J. M., III | DREXEL UNIVERSITY | NAS 1-14393 | House, F. B. | 31 | 3204 |
| LARC | Rogowski, R. S. | DREXEL UNIVERSITY | NSG 1240 | Bandy, A. R. | 39 | 3207 |
| LARC | Snyder, W. J. | DUKE UNIVERSITY | NSG 1121 | Dajani, J. S. | 44 | 3049 |
| LARC | Migneault, G. E. | DUKE UNIVERSITY | NSG 1267 | Gerhart, S. L. | 21 | 3050 |
| LARC | Conway, E. J. | ELIZABETH CITY ST U | NSG 1179 | Chatterjee, K. K. | 12 | 3052 |
| LARC | Williams, T. S., Jr. | FLORIDA STATE UNIV | NAS 1-9693 | Hess, S. K. | 32 | 1906 |
| LARC | Hardin, J. C. | FLORIDA STATE UNIV | NSG 1021 | Tam, C. K. | 13 | 1910 |
| LARC | McComb, H. G., Jr. | GEORGE WASHINGTON U | NAS 1-14313 | Toridis, T. G. | 49 | 1855 |
| LARC | Anderson, A. F. | GEORGE WASHINGTON U | NGL 09-010-053 | Liebowitz, H. | 49 | 1858 |
| LARC | Margolis, K. | GEORGE WASHINGTON U | NGR 09-010-064 | Liebowitz, H. | 41 | 1859 |
| LARC | Mulac, R. W. | GEORGE WASHINGTON U | NGR 09-010-074 | Liebowitz, H. | 41 | 1860 |
| LARC | Anderson, R. A. | GEORGE WASHINGTON U | NGR 09-010-078 | Liebowitz, H. | 41 | 1861 |
| LARC | Margolis, K. | GEORGE WASHINGTON U | NGR 09-010-085 | Liebowitz, H. | 41 | 1862 |
| LARC | Swift, C. T. | GEORGE WASHINGTON U | NGR 09-010-096 | Liebowitz, H. | 45 | 1863 |
| LARC | Callis, L. B., Jr. | GEORGE WASHINGTON U | NSG 1026 | Liebowitz, H. | 31 | 1864 |
| LARC | Bailey, M. C. | GEORGE WASHINGTON U | NSG 1110 | Liebowitz, H. | 45 | 1865 |
| LARC | Swann, R. T. | GEORGE WASHINGTON U | NSG 1155 | Liebowitz, H. | 47 | 1866 |
| LARC | Suit, W. T. | GEORGE WASHINGTON U | NSG 1161 | Liebowitz, H. | 41 | 1867 |
| LARC | Straeter, T. A. | GEORGE WASHINGTON U | NSG 1170 | Maurer, W. D. | 99 | 1868 |
| LARC | Callis, L. B., Jr. | GEORGE WASHINGTON U | NSG 1216 | Liebowitz, H. | 31 | 1869 |
| LARC | Poe, C. C., Jr. | GEORGE WASHINGTON U | NSG 1228 | Liebowitz, H. | 47 | 1870 |
| LARC | McKinney, L. W. | GEORGE WASHINGTON U | NSG 1246 | Liebowitz, H. | 41 | 1871 |
| LARC | Costen, R. C. | GEORGE WASHINGTON U | NSG 1251 | Liebowitz, H. | 31 | 1872 |
| LARC | Elber, W. | GEORGE WASHINGTON U | NSG 1289 | Liebowitz, H. | 47 | 1873 |
| LARC | Williams, T. S., Jr. | GEORGIA INST OF TECH | NAS 1-13422 | Hubbard, J. S. | 51 | 1959 |
| LARC | Lawrence, G. F. | GEORGIA INST OF TECH | NAS 1-14351 | Zimmer, R. P. | 31 | 1960 |
| LARC | Peterson, J. P. | GEORGIA INST OF TECH | NGL 11-002-096 | Horton, W. H. | 41 | 1981 |
| LARC | Leybold, H. A. | GEORGIA INST OF TECH | NGR 11-002-169 | Hanagud, S. V. | 21 | 1983 |
| LARC | Eggers, J. M. | GEORGIA INST OF TECH | NGR 11-002-177 | Bangert, L. H. | 41 | 1984 |
| LARC | Posey, J. W. | GEORGIA INST OF TECH | NSG 1047 | Hadden, W. J., Jr. | 13 | 1986 |
| LARC | Weston, R. P. | GEORGIA INST OF TECH | NSG 1257 | McMahon, H. M. | 41 | 1987 |
| LARC | Hohl, F. | GEORGIA INST OF TECH | NSG 1288 | Clement, J. D. | 19 | 1988 |
| LARC | Preisser, J. S. | GEORGIA INST OF TECH | NSG 1307 | Pierce, A. D. | 13 | 1989 |
| LARC | Jewel, J. W., Jr. | HAMPTON INSTITUTE | NAS 1-12445 | Williams, G. K. | 41 | 3592 |
| LARC | Jewel, J. W., Jr. | HAMPTON INSTITUTE | NAS 1-14507 | Williams, G. K. | 41 | 3593 |
| LARC | Anderson, A. F. | HAMPTON INSTITUTE | NCA 1-1 | Darden, G. C. | 49 | 3594 |
| LARC | Singh, J. J. | HAMPTON INSTITUTE | NGR 47-020-008 | Han, K. S. | 13 | 3596 |
| LARC | Catherines, J. J. | HAMPTON INSTITUTE | NSG 1011 | Duncan, N. C. | 69 | 3597 |
| LARC | Jachimowski, C. J. | HAMPTON INSTITUTE | NSG 1086 | Hunter, C. E. | 12 | 3598 |
| LARC | Katzberg, S. J. | HAMPTON INSTITUTE | NSG 1146 | Trehan, A. K. | 45 | 3599 |
| LARC | Katzberg, S. J. | HAMPTON INSTITUTE | NSG 1294 | Trehan, A. K. | 45 | 3600 |
| LARC | Williams, T. S., Jr. | HARVARD UNIVERSITY | NAS 1-10492 | McElroy, M. B. | 31 | 2379 |
| LARC | Swift, C. T. | HOFSTRA UNIVERSITY | NGR 33-209-002 | Weissman, D. E. | 45 | 2940 |
| LARC | Kruszewski, E. T. | HOWARD UNIVERSITY | NSG 1130 | Broome, T. H. | 44 | 1886 |
| LARC | Martz, C. W. | HOWARD UNIVERSITY | NSG 1181 | Bainum, P. M. | 41 | 1887 |
| LARC | Beckwith, I. E. | ILL INST OF TECH | NSG 1120 | Nagib, H. M. | 41 | 2035 |
| LARC | Starnes, J. H., Jr. | ILL INST OF TECH | NSG 1266 | Haftka, R. T. | 41 | 2036 |
| LARC | Dixon, S. C. | ISRAEL INST OF TECH | NGR 52-012-008 | Haftka, R. T. | 41 | 3820 |

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|--------------------|--------------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| LARC | Abel, I. | ISRAEL INST OF TECH | NSG 7072 | Nissim, E. | 41 | 3821 |
| LARC | Bush, H. G. | ISRAEL INST OF TECH | NSG 7083 | Weller, T. | 41 | 3822 |
| LARC | Bavuso, S. J. | JOHNS HOPKINS UNIV | NSG 1265 | Masson, G. M. | 45 | 2285 |
| LARC | Illg, W. | LEHIGH UNIVERSITY | NGR 39-007-011 | Erdogan, F. | 21 | 3217 |
| LARC | Poe., C. C., Jr. | LEHIGH UNIVERSITY | NSG 1178 | Arin, K. | 47 | 3222 |
| LARC | Hinton, D. E. | MARQUETTE UNIVERSITY | NSG 1025 | Nigro, N. J. | 21 | 3770 |
| LARC | Campbell, J. W. | MARY BALDWIN COLLEGE | NSG 1209 | Sawyer, J. O. | 21 | 3601 |
| LARC | Williams, T. S., Jr. | MASS INST OF TECH | NAS 1-9684 | Biemann, K. | 39 | 2414 |
| LARC | Williams, T. S., Jr. | MASS INST OF TECH | NAS 1-9691 | Rich, A. | 51 | 2415 |
| LARC | Williams, T. S., Jr. | MASS INST OF TECH | NAS 1-9702 | Shapiro, I. I. | 99 | 2416 |
| LARC | Reid, H. J., Jr. | MASS INST OF TECH | NGL 22-009-640 | Simpson, R. W. | 41 | 2456 |
| LARC | Queijo, M. J. | MASS INST OF TECH | NGR 22-009-701 | Young, L. R. | 41 | 2471 |
| LARC | Rhodes, M. D. | MASS INST OF TECH | NGR 22-009-781 | Mar, J. W. | 41 | 2481 |
| LARC | Hoad, D. R. | MASS INST OF TECH | NGR 22-009-818 | Widnall, S. E. | 41 | 2487 |
| LARC | Gera, J. | MASS INST OF TECH | NSG 1018 | Athans, M. | 41 | 2490 |
| LARC | Hess, R. V. | MASS INST OF TECH | NSG 1048 | Wrighton, M. S. | 12 | 2491 |
| LARC | Montgomery, R. C. | MASS INST OF TECH | NSG 1112 | Willsky, A. S. | 41 | 2492 |
| LARC | Byvik, C. E. | MASS INST OF TECH | NSG 1190 | Gatos, H. C. | 47 | 2493 |
| LARC | Fichter, W. B. | MASS INST OF TECH | NSG 1217 | Williams, J. H., Jr. | 49 | 2494 |
| LARC | Bland, S. R. | MASS INST OF TECH | NSG 1219 | Harris, W. L. | 41 | 2495 |
| LARC | Boyden, R. P. | MASS INST OF TECH | NSG 1292 | Covert, E. E. | 41 | 2496 |
| LARC | O'Neal, R. L. | MASS INST OF TECH | NSG 1299 | McCarthy, J. F., Jr. | 99 | 2497 |
| LARC | Unavailable | MICHIGAN STATE UNIV | NAS 1-6860 | Unavailable | 13 | 2543 |
| LARC | Hardin, J. C. | MICHIGAN STATE UNIV | NGR 23-004-091 | Foss, J. F. | 41 | 2545 |
| LARC | Hefner, J. N. | MICHIGAN STATE UNIV | NSG 1138 | Foss, J. F. | 41 | 2546 |
| LARC | Elber, W. | MICHIGAN STATE UNIV | NSG 1148 | Sharp, W. N., Jr. | 47 | 2547 |
| LARC | Bobbitt, P. J. | MISSISSIPPI STATE U | NGR 25-001-055 | Thompson, J. F. | 41 | 2671 |
| LARC | Hall, A. W. | MISSISSIPPI STATE U | NSG 1083 | Cross, E. J., Jr. | 41 | 2672 |
| LARC | Hall, A. W. | MISSISSIPPI STATE U | NSG 1231 | Cross, E. J., Jr. | 41 | 2673 |
| LARC | Weilmuenster, K. J. | MISSISSIPPI STATE U | NSG 1242 | Thompson, J. F. | 21 | 2674 |
| LARC | Harris, R. L. | MISSISSIPPI STATE U | NSG 1249 | Bennett, A. G., Jr. | 41 | 2675 |
| LARC | Gera, J. | MISSISSIPPI STATE U | NSG 1284 | Bennett, A. G. | 41 | 2676 |
| LARC | Harvey, G. A. | NEW MEX ST U-LAS CR | NAS 1-13586 | Beebe, R. F. | 11 | 2801 |
| LARC | Fetterman, D. E. | NEW YORK UNIVERSITY | NGL 33-016-119 | Ferri, A. | 41 | 2943 |
| LARC | Huber, P. W. | NEW YORK UNIVERSITY | NGR 33-016-131 | Zakkay, V. | 41 | 2944 |
| LARC | South, J. C., Jr. | NEW YORK UNIVERSITY | NGR 33-016-167 | Garabedian, P. R. | 21 | 2945 |
| LARC | Liu, C. H. | NEW YORK UNIVERSITY | NSG 1291 | Ting, L. | 41 | 2949 |
| LARC | McLean, F. E. | NEW YORK UNIVERSITY | NSG 1298 | Hoffert, M. I. | 39 | 2950 |
| LARC | Stallings, R. L. | NEW YORK UNIVERSITY | NSG 1303 | Zakkay, V. | 41 | 2951 |
| LARC | Shoosmith, J. N. | NORFOLK STATE COL | NSG 1014 | Boseman, M. | 21 | 3602 |
| LARC | Dempsey, T. K. | NORFOLK STATE COL | NSG 1074 | Colegate, R. L. | 59 | 3603 |
| LARC | Allario, F. | NO CAR A&T STATE U | NSG 1147 | Yu, C. | 13 | 3054 |
| LARC | Rhodes, M. D. | NO CAR A&T STATE U | NSG 1296 | Sharma, A. V. | 47 | 3055 |
| LARC | Mayes, W. H. | NO CAROLINA STATE U | NGL 34-002-095 | Levere, T. E. | 69 | 3060 |
| LARC | Hagginbothom, W. K., Jr. | NO CAROLINA STATE U | NGR 34-002-108 | Manning, C. R., Jr. | 47 | 3061 |
| LARC | Croswell, W. F. | NO CAROLINA STATE U | NGR 34-002-188 | Herman, B. M. | 45 | 3062 |
| LARC | Hohl, F. | NO CAROLINA STATE U | NSG 1058 | Hassan, H. A. | 13 | 3064 |
| LARC | Crane, H. L. | NO CAROLINA STATE U | NSG 1077 | Smetana, F. O. | 41 | 3065 |
| LARC | Hutchby, J. A. | NO CAROLINA STATE U | NSG 1116 | Hauser, J. R. | 45 | 3066 |
| LARC | O'Neal, R. L. | NO CAROLINA STATE U | NSG 1133 | Manning, C. R., Jr. | 47 | 3067 |
| LARC | O'Neal, R. L. | NO CAROLINA STATE U | NSG 1136 | Bailey, J. A. | 47 | 3068 |
| LARC | Miller, W. E. | NO CAROLINA STATE U | NSG 1202 | Littlejohn, M. A. | 13 | 3069 |
| LARC | Mayes, W. H. | NO CAROLINA STATE U | NSG 1205 | Hart, F. D. | 13 | 3070 |
| LARC | Walberg, G. D. | NO CAROLINA STATE U | NSG 1287 | Dejarnette, F. R. | 41 | 3071 |
| LARC | Barnwell, R. W. | OHIO STATE UNIV | NAS 1-14406 | Gregorek, G. M. | 41 | 3109 |
| LARC | Gilreath, M. C. | OHIO STATE UNIV | NGL 36-008-138 | Burnside, W. D. | 45 | 3120 |
| LARC | Hall, A. W. | OHIO STATE UNIV | NSG 1184 | Gregorek, G. M. | 41 | 3127 |
| LARC | Dibattista, J. D. | OHIO STATE UNIV | NSG 1212 | Nerem, R. M. | 99 | 3128 |

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| LARC | Reid, H. J., Jr. | OHIO UNIVERSITY | NAS 1-14124 | McFarland, R. H. | 45 | 3131 |
| LARC | Reid, H. J., Jr. | OHIO UNIVERSITY | NGR 36-009-017 | McFarland, R. H. | 45 | 3133 |
| LARC | Martin, D. J. | OLD DOMINION UNIV | NAS 1-9434 | Ousterhout, D. S. | 99 | 3604 |
| LARC | Martin, D. J. | OLD DOMINION UNIV | NAS 1-11707 | Ousterhout, D. S. | 49 | 3605 |
| LARC | Hillard, M. E., Jr. | OLD DOMINION UNIV | NAS 1-13820 | Bandy, A. R. | 13 | 3606 |
| LARC | Whitlock, C. H. | OLD DOMINION UNIV | NAS 1-14193 | Kuo, C. Y. | 99 | 3607 |
| LARC | Johnston, N. J. | OLD DOMINION UNIV | NGL 47-003-008 | Williams, R. L. | 12 | 3608 |
| LARC | Leland, T. J. | OLD DOMINION UNIV | NGL 47-003-012 | Cheng, R. | 44 | 3609 |
| LARC | Gentry, G. L., Jr. | OLD DOMINION UNIV | NGL 47-003-039 | Ousterhout, D. S. | 41 | 3610 |
| LARC | Outlaw, R. A. | OLD DOMINION UNIV | NGR 47-003-043 | Brock, F. J. | 13 | 3612 |
| LARC | Phillips, D. H. | OLD DOMINION UNIV | NGR 47-003-048 | Ake, R. L. | 13 | 3613 |
| LARC | Anderson, A. F. | OLD DOMINION UNIV | NGR 47-003-052 | Roberts, A. S., Jr. | 41 | 3614 |
| LARC | Crumbly, K. H. | OLD DOMINION UNIV | NGR 47-003-068 | Harris, F. S., Jr. | 31 | 3615 |
| LARC | Wilson, J. W. | OLD DOMINION UNIV | NGR 47-003-078 | Khandelwal, G. S. | 13 | 3616 |
| LARC | Melfi, L. T., Jr. | OLD DOMINION UNIV | NGR 47-003-082 | Clay, F. P., Jr. | 31 | 3617 |
| LARC | Hohl, F. | OLD DOMINION UNIV | NSG 1022 | Harries, W. L. | 13 | 3620 |
| LARC | Keating, G. M. | OLD DOMINION UNIV | NSG 1028 | Goglia, G. L. | 31 | 3621 |
| LARC | Holmes, H. K. | OLD DOMINION UNIV | NSG 1039 | Zuckerwar, A. J. | 49 | 3622 |
| LARC | Hohl, F. | OLD DOMINION UNIV | NSG 1040 | Harries, W. L. | 19 | 3623 |
| LARC | Wilson, J. W. | OLD DOMINION UNIV | NSG 1055 | Khandelwal, G. S. | 19 | 3624 |
| LARC | Remsberg, E. E. | OLD DOMINION UNIV | NSG 1060 | Kindle, E. C. | 31 | 3625 |
| LARC | Tripp, J. S. | OLD DOMINION UNIV | NSG 1079 | Tcheng, P. L. | 45 | 3626 |
| LARC | Hefner, J. N. | OLD DOMINION UNIV | NSG 1087 | Goglia, G. L. | 41 | 3627 |
| LARC | Harris, J. E. | OLD DOMINION UNIV | NSG 1098 | Cooke, C. H. | 41 | 3628 |
| LARC | Hefner, J. N. | OLD DOMINION UNIV | NSG 1100 | Ash, R. L. | 41 | 3629 |
| LARC | Weidman, D. J. | OLD DOMINION UNIV | NSG 1117 | Narayanaswami, R. | 44 | 3630 |
| LARC | Reichle, H. G., Jr. | OLD DOMINION UNIV | NSG 1127 | Kindle, E. C. | 31 | 3631 |
| LARC | Russell, J. M., III | OLD DOMINION UNIV | NSG 1131 | Kindle, E. C. | 31 | 3632 |
| LARC | McKinney, L. W. | OLD DOMINION UNIV | NSG 1135 | Goglia, G. L. | 41 | 3633 |
| LARC | Kershner, D. D. | OLD DOMINION UNIV | NSG 1143 | Barna, P. S. | 41 | 3634 |
| LARC | Gapcynski, J. P. | OLD DOMINION UNIV | NSG 1152 | Breedlove, W. J., Jr. | 19 | 3635 |
| LARC | Reichle, H. G., Jr. | OLD DOMINION UNIV | NSG 1153 | Tiwari, S. N. | 31 | 3636 |
| LARC | Davis, J. G., Jr. | OLD DOMINION UNIV | NSG 1167 | Hyer, M. W. | 41 | 3637 |
| LARC | Hellbaum, R. F. | OLD DOMINION UNIV | NSG 1177 | Goglia, G. L. | 45 | 3638 |
| LARC | Tynan, C. I., Jr. | OLD DOMINION UNIV | NSG 1186 | Goglia, G. L. | 99 | 3639 |
| LARC | Allario, F. | OLD DOMINION UNIV | NSG 1197 | Kindle, E. C. | 31 | 3640 |
| LARC | Keating, G. M. | OLD DOMINION UNIV | NSG 1207 | Goglia, G. L. | 19 | 3641 |
| LARC | Dempsey, T. K. | OLD DOMINION UNIV | NSG 1225 | Coates, G. D. | 69 | 3642 |
| LARC | Harris, J. E. | OLD DOMINION UNIV | NSG 1226 | Goglia, G. L. | 41 | 3643 |
| LARC | Hefner, J. N. | OLD DOMINION UNIV | NSG 1236 | Goglia, G. L. | 46 | 3644 |
| LARC | Adelman, H. M. | OLD DOMINION UNIV | NSG 1237 | Thornton, E. A. | 41 | 3645 |
| LARC | Keckler, C. R. | OLD DOMINION UNIV | NSG 1241 | Roberts, A. S., Jr. | 49 | 3646 |
| LARC | Fuller, W. H., Jr. | OLD DOMINION UNIV | NSG 1245 | Harris, F. S., Jr. | 39 | 3647 |
| LARC | Dempsey, T. K. | OLD DOMINION UNIV | NSG 1247 | Coates, G. D. | 69 | 3648 |
| LARC | McCormick, M. P. | OLD DOMINION UNIV | NSG 1252 | Deepak, A. | 31 | 3649 |
| LARC | McCormick, M. P. | OLD DOMINION UNIV | NSG 1259 | Chu, W. P. | 31 | 3650 |
| LARC | Adelman, H. M. | OLD DOMINION UNIV | NSG 1260 | Golia, G. L. | 41 | 3651 |
| LARC | Melfi, L. T., Jr. | OLD DOMINION UNIV | NSG 1271 | Brock, F. J. | 13 | 3652 |
| LARC | Kruszewski, E. T. | OLD DOMINION UNIV | NSG 1279 | Hyer, M. W. | 49 | 3653 |
| LARC | Reichle, H. G., Jr. | OLD DOMINION UNIV | NSG 1282 | Tiwari, S. N. | 31 | 3654 |
| LARC | Coe, P. L., Jr. | OLD DOMINION UNIV | NSG 1309 | Goglia, G. L. | 41 | 3655 |
| LARC | Bobbitt, P. J. | OLD DOMINION UNIV | NSG 1311 | Goglia, G. L. | 41 | 3656 |
| LARC | Peterson, J. B., Jr. | OLD DOMINION UNIV | NSG 1315 | Goglia, G. L. | 41 | 3657 |
| LARC | Hunt, L. R. | OLD DOMINION UNIV | NSG 1318 | Keshock, E. G. | 41 | 3658 |
| LARC | Wieting, A. R. | OLD DOMINION UNIV | NSG 1321 | Thornton, E. A. | 49 | 3659 |
| LARC | Heyson, H. H. | PENN STATE U-UNIV PK | NGL 39-009-172 | Eisenhuth, J. J. | 41 | 3241 |
| LARC | Slemp, W. S. | PENN STATE U-UNIV PK | NSG 1141 | Allcock, H. R. | 12 | 3249 |
| LARC | Davis, R. E. | PENN STATE U-UNIV PK | NSG 1280 | Cahir, J. J. | 31 | 3250 |

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|--------------------|----------------------|-----------------------|------------------------------|---------------------------------|---------------|------------|
| LARC | Fisher, B. D. | PENN STATE U-UNIV PK | NSG 1308 | McCormick, B. W. | 41 | 3251 |
| LARC | Hoppe, J. C. | POLY INST OF NY | NSG 1198 | Lederman, S. | 42 | 2963 |
| LARC | Rudy, D. H. | POLY INST OF NY | NSG 1244 | Rubin, S. G. | 41 | 2964 |
| LARC | Salas, M. D. | POLY INST OF NY | NSG 1248 | Moretti, G. | 41 | 2965 |
| LARC | Morgan, H. L., Jr. | POLY INST OF NY | NSG 1300 | Krenkel, A. R. | 41 | 2966 |
| LARC | Williams, T. S., Jr. | POMONA COLLEGE | NAS 1-11854 | Baird, A. K. | 12 | 1271 |
| LARC | Williams, T. S., Jr. | PRINCETON UNIVERSITY | NAS 1-9705 | Hargraves, R. B. | 19 | 2750 |
| LARC | Miller, G. K., Jr. | PRINCETON UNIVERSITY | NAS 1-13502 | Socket, E. | 41 | 2751 |
| LARC | Mixson, J. S. | PRINCETON UNIVERSITY | NGL 31-001-146 | Dowell, E. H. | 41 | 2764 |
| LARC | Reid, H. J., Jr. | PRINCETON UNIVERSITY | NGL 31-001-252 | Graham, D. | 41 | 2765 |
| LARC | Hunter, W. W., Jr. | PRINCETON UNIVERSITY | NSG 1070 | Miles, R. B. | 13 | 2778 |
| LARC | Crane, H. L. | PRINCETON UNIVERSITY | NSG 1078 | Seckel, E. | 41 | 2779 |
| LARC | Hohl, F. | PRINCETON UNIVERSITY | NSG 1129 | Stoenescu, M. L. | 49 | 2780 |
| LARC | Crane, H. L. | PRINCETON UNIVERSITY | NSG 1234 | Seckel, E. | 41 | 2781 |
| LARC | Mixson, J. S. | PRINCETON UNIVERSITY | NSG 1253 | Dowell, E. H. | 41 | 2782 |
| LARC | Landrum, E. J. | PURDUE UNIVERSITY | NGR 15-005-119 | Marshall, F. J. | 41 | 2126 |
| LARC | Davidson, J. R. | PURDUE UNIVERSITY | NSG 1278 | Sun, C. T. | 47 | 2132 |
| LARC | Pao, S. P. | PURDUE UNIVERSITY | NSG 1293 | Kentzer, C. P. | 41 | 2133 |
| LARC | Wood, G. M. | RENSSELAER POLY-NY | NSG 1052 | White, F. A. | 19 | 2981 |
| LARC | Hood, R. V. | RENSSELAER POLY-NY | NSG 1188 | Kaufman, H. | 41 | 2982 |
| LARC | Margason, R. J. | ROSE-HULMAN INST TEC | NSG 1258 | Roper, A. T. | 41 | 2142 |
| LARC | Beach, H. L., Jr. | RUTGERS UNIV-NEWARK | NSG 1314 | Johnson, J. A., III | 13 | 2793 |
| LARC | Sobieszczanski, J. | ST LOUIS UNIVERSITY | NGL 26-006-021 | Long, C. A. | 41 | 2684 |
| LARC | Bell, V. L., Jr. | SHAW UNIVERSITY | NSG 1033 | Chatterji, A. K. | 12 | 3073 |
| LARC | Walker, G. H. | SOUTHERN METHODIST U | NSG 1206 | Ashley, K. L. | 45 | 3401 |
| LARC | Williams, T. S., Jr. | STANFORD UNIVERSITY | NAS 1-9682 | Levinthal, E. C. | 99 | 1332 |
| LARC | Williams, T. S., Jr. | STANFORD UNIVERSITY | NAS 1-9692 | Lederberg, J. | 51 | 1333 |
| LARC | Williams, T. S., Jr. | STANFORD UNIVERSITY | NAS 1-9701 | Tyler, G. L. | 45 | 1334 |
| LARC | Doggett, R. V., Jr. | STANFORD UNIVERSITY | NGL 05-020-243 | Ashley, H. | 41 | 1387 |
| LARC | Reed, W. H., III | STANFORD UNIVERSITY | NGL 05-020-397 | Herrmann, G. | 41 | 1390 |
| LARC | Hutchby, J. A. | STANFORD UNIVERSITY | NSG 1201 | Pearson, G. L. | 13 | 1417 |
| LARC | Keating, G. M. | STANFORD UNIVERSITY | NSG 1210 | Debra, D. B. | 49 | 1418 |
| LARC | Williams, T. S., Jr. | STATE U NY-STONY BRK | NAS 1-10493 | Owens, T. | 39 | 3004 |
| LARC | Stermer, R. L. | SYRACUSE UNIVERSITY | NSG 1194 | Schroder, K. | 45 | 3033 |
| LARC | Staylor, W. F. | TEXAS A&M UNIVERSITY | NAS 1-14185 | Kattawar, G. W. | 42 | 3404 |
| LARC | South, J. C., Jr. | TEXAS A&M UNIVERSITY | NSG 1174 | Carlson, L. A. | 41 | 3437 |
| LARC | McCormick, M. P. | UNIV OF ARIZONA | NAS 1-14332 | Herman, B. M. | 31 | 1101 |
| LARC | Stroud, W. J. | UNIV CALIF-L ANGELES | NGR 05-007-337 | Schmit, L. A. | 41 | 1569 |
| LARC | Bland, S. R. | UNIV CALIF-L ANGELES | NGR 05-007-395 | Cole, J. D. | 41 | 1572 |
| LARC | Hammond, C. E. | UNIV CALIF-L ANGELES | NGR 05-007-414 | Friedmann, P. | 41 | 1574 |
| LARC | Keating, G. M. | UNIV CALIF-L ANGELES | NGR 05-007-416 | Knuth, E. L. | 13 | 1575 |
| LARC | McCormick, M. P. | UNIV CALIF-L ANGELES | NSG 1270 | Kuriyan, J. G. | 31 | 1578 |
| LARC | Gessow, A. | UNIV CALIF-SAN DIEGO | NGR 05-009-178 | Libby, P. A. | 41 | 1623 |
| LARC | Suit, W. T. | UNIV OF CINCINNATI | NGR 36-004-061 | Wells, W. R. | 41 | 3136 |
| LARC | Mikulas, M. M., Jr. | UNIV OF CINCINNATI | NSG 1185 | Nayfeh, A. H. | 49 | 3140 |
| LARC | Dunavant, J. C. | UNIV OF CINCINNATI | NSG 1208 | Polak, A. | 41 | 3141 |
| LARC | Rainey, R. W. | UNIV COLORADO-BOLDR | NSG 1056 | Culp, R. D. | 41 | 1788 |
| LARC | Jones, R. L. | UNIV COLORADO-BOLDR | NSG 1140 | Horowitz, I. | 45 | 1789 |
| LARC | Schy, A. A. | UNIV COLORADO-BOLDR | NSG 1213 | Wang, S. H. | 45 | 1790 |
| LARC | Mayes, W. H. | UNIV OF CONNECTICUT | NSG 1082 | Cooker, H. S. | 49 | 1819 |
| LARC | Johnson, R. W. | UNIV OF DELAWARE | NAS 1-12304 | Klemas, V. | 39 | 1830 |
| LARC | Collins, V. G. | UNIV OF DELAWARE | NSG 1149 | Klemas, V. | 39 | 1832 |
| LARC | Deaton, J. W. | UNIV OF DELAWARE | NSG 1304 | Pipes, R. B. | 46 | 1833 |
| LARC | Margason, R. J. | UNIV OF FLORIDA | NGL 10-005-127 | Fearn, R. L. | 41 | 1924 |
| LARC | Williams, T. S., Jr. | UNIV HOUSTON-HOUSTON | NAS 1-9685 | Oro, J. | 39 | 3444 |
| LARC | Hardin, J. C. | UNIV HOUSTON-HOUSTON | NSG 1277 | Kleis, S. J. | 13 | 3470 |
| LARC | Hefner, J. N. | UNIV HOUSTON-HOUSTON | NSG 1290 | Hussain, A. K. | 41 | 3471 |
| LARC | Evans, J. S. | UNIV ILLINOIS-CHICAGO | NSG 1150 | Chung, P. M. | 41 | 2075 |

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| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| LARC | Morgan, H. L., Jr. | UNIV ILLINOIS-URBANA | NGR 14-005-144 | Ormsbee, A. I. | 41 | 2077 |
| LARC | Stickle, J. W. | UNIV ILLINOIS-URBANA | NGR 14-005-194 | Ormsbee, A. I. | 41 | 2082 |
| LARC | Hohl, F. | UNIV ILLINOIS-URBANA | NSG 1063 | Milev, G. H. | 13 | 2086 |
| LARC | Hefner, J. N. | UNIV ILLINOIS-URBANA | NSG 1233 | Lin, Y. K. | 41 | 2087 |
| LARC | Maestrello, L. | UNIV ILLINOIS-URBANA | NSG 1264 | Lin, Y. K. | 41 | 2088 |
| LARC | Coffee, C. W., Jr. | UNIV OF IOWA | NAS 1-13129 | Van Allen, J. A. | 13 | 2167 |
| LARC | Ward, J. F. | UNIV OF KANSAS | NAS 1-12976 | Muirhead, V. U. | 41 | 2186 |
| LARC | Crane, H. L. | UNIV OF KANSAS | NGR 17-002-072 | Kohlman, D. L. | 41 | 2195 |
| LARC | Pride, R. A. | UNIV OF KANSAS | NGR 17-004-027 | Lenzen, K. H. | 41 | 2197 |
| LARC | Lamar, J. E. | UNIV OF KANSAS | NSG 1046 | Roskam, J. | 41 | 2198 |
| LARC | Naumann, E. C. | UNIV OF KANSAS | NSG 1122 | Lenzen, K. H. | 41 | 2199 |
| LARC | Campbell, J. F. | UNIV OF KANSAS | NSG 1139 | Lan, C. E. | 41 | 2200 |
| LARC | Bailey, M. C. | UNIV OF KANSAS | NSG 1142 | Biggs, A. W. | 45 | 2201 |
| LARC | Crane, H. L. | UNIV OF KANSAS | NSG 1227 | Kohlman, D. L. | 41 | 2202 |
| LARC | Rummler, D. R. | UNIV OF KANSAS | NSG 1269 | Zerwekh, R. P. | 47 | 2203 |
| LARC | Howell, W. E. | UNIV OF KANSAS | NSG 1281 | Reesie, C. D. | 47 | 2204 |
| LARC | Stephens, D. G. | UNIV OF KANSAS | NSG 1301 | Roskam, J. | 41 | 2205 |
| LARC | Campbell, J. F. | UNIV OF KANSAS | NSG 1302 | Lan, C. E. | 41 | 2206 |
| LARC | Pritchard, E. B. | UNIV OF KANSAS | NSG 1310 | Lenzen, K. H. | 44 | 2207 |
| LARC | Reichle, H. G., Jr. | UNIV OF KENTUCKY | NSG 1273 | Peters, L. K. | 31 | 2231 |
| LARC | Mayes, W. H. | UNIV OF LOUISVILLE | NSG 1220 | Loeb, M. | 69 | 2235 |
| LARC | Fralich, R. W. | UNIVERSITY OF LOWELL | NSG 1295 | McElman, J. A. | 41 | 2533 |
| LARC | Pellett, G. L. | UNIV MARYLAND-COL PK | NSG 1031 | Davis, D. D. | 12 | 2343 |
| LARC | Hoell, J. M. | UNIV MARYLAND-COL PK | NSG 1075 | Davis, D. D. | 39 | 2344 |
| LARC | Northam, G. B. | UNIV MARYLAND-COL PK | NSG 1156 | Gammon, R. W. | 31 | 2345 |
| LARC | McComb, H. G., Jr. | UNIV MARYLAND-COL PK | NSG 1193 | Schaeffer, H. G. | 41 | 2346 |
| LARC | Lisagor, W. B. | UNIV OF MIAMI | NSG 1283 | Craig, H. L., Jr. | 47 | 1945 |
| LARC | Russell, J. M., III | UNIV MICH-ANN ARBOR | NAS 1-14394 | Drayson, S. R. | 31 | 2549 |
| LARC | McCarty, J. L. | UNIV MICH-ANN ARBOR | NGL 23-005-010 | Clark, S. R. | 41 | 2575 |
| LARC | Czarnecki, K. R. | UNIV MICH-ANN ARBOR | NGR 23-005-523 | Sichel, M. | 41 | 2582 |
| LARC | Fichter, W. B. | UNIV MICH-ANN ARBOR | NGR 23-005-528 | Felbeck, D. K. | 47 | 2583 |
| LARC | Reichle, H. G., Jr. | UNIV MICH-ANN ARBOR | NGR 23-005-617 | Drayson, S. R. | 31 | 2588 |
| LARC | Russell, J. M., III | UNIV MICH-ANN ARBOR | NSG 1003 | Drayson, S. R. | 31 | 2589 |
| LARC | McCarty, J. L. | UNIV MICH-ANN ARBOR | NSG 1080 | Clark, S. K. | 41 | 2590 |
| LARC | Straeter, T. A. | UNIV MICH-ANN ARBOR | NSG 1176 | Holland, J. H. | 21 | 2591 |
| LARC | Stough, H. P. | UNIV MICH-ANN ARBOR | NSG 1229 | Kroeger, R. A. | 41 | 2592 |
| LARC | Pellett, G. L. | UNIV MICH-ANN ARBOR | NSG 1243 | Dingle, A. N. | 31 | 2593 |
| LARC | Bavuso, S. J. | UNIV MICH-ANN ARBOR | NSG 1306 | Meyer, J. F. | 45 | 2594 |
| LARC | Williams, T. S., Jr. | U MINN-MNPLS-ST PAUL | NAS 1-9697 | Nier, A. O. | 99 | 2614 |
| LARC | Beswick, A. G. | U MINN-MNPLS-ST PAUL | NAS 1-11676 | Nier, A. O. | 31 | 2615 |
| LARC | Keating, G. M. | U MINN-MNPLS-ST PAUL | NAS 1-13712 | Mauersberger, K. | 31 | 2616 |
| LARC | Mixson, J. S. | UNIV MO-ROLLA | NSG 1050 | Koval, L. R. | 41 | 2703 |
| LARC | Williams, T. S., Jr. | UNIV OF NEW MEXICO | NAS 1-11855 | Keil, K. | 12 | 2814 |
| LARC | Hellbaum, R. F. | UNIV OF NEW MEXICO | NGR 32-004-026 | Richards, C. G. | 46 | 2833 |
| LARC | Hendricks, H. D. | UNIV OF NOTRE DAME | NSG 1102 | Magee, C. J. | 45 | 2144 |
| LARC | Gross, C. | UNIV OKLAHOMA-NORMAN | NSG 1183 | Kahng, S. K. | 45 | 3176 |
| LARC | Suttles, J. T. | UNIV OF RHODE ISLAND | NSG 1008 | Spaulding, M. L. | 49 | 3302 |
| LARC | Gainer, P. A. | UNIV OF ROCHESTER | NSG 1211 | Brown, J. L. | 69 | 3038 |
| LARC | Park, S. K. | UNIV OF SO FLORIDA | NSG 1159 | Tsokos, C. P. | 21 | 1949 |
| LARC | Kilgore, R. A. | UNIV OF SOUTHAMPTON | NSG 7172 | Goodyer, M. J. | 41 | 3819 |
| LARC | Seiner, J. M. | UNIV OF SOUTHERN CAL | NSG 1221 | Laufer, J. | 41 | 1717 |
| LARC | Johnston, N. J. | UNIV SO MISSISSIPPI | NGR 25-005-005 | Thames, S. F. | 12 | 2682 |
| LARC | Wood, G. M. | UNIV SO MISSISSIPPI | NSG 1285 | Rayborn, G. H. | 13 | 2683 |
| LARC | Clark, L. R. | UNIV TENNESSEE-KNOXV | NSG 1081 | Lumsdaine, E. | 41 | 3342 |
| LARC | Newman, J. C., Jr. | UNIV TENNESSEE-KNOXV | NSG 1163 | Wright, M. A. | 47 | 3343 |
| LARC | Hammond, C. E. | UNIV TENNESSEE-KNOXV | NSG 1171 | Lumsdaine, E. | 41 | 3344 |
| LARC | Bland, S. R. | UNIV TENNESSEE-KNOXV | NSG 1224 | Kimble, K. R. | 41 | 3345 |
| LARC | Smith, R. E. | UNIV TENNESSEE-KNOXV | NSG 1261 | Baker, A. J. | 21 | 3346 |

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|--------------------|------------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| LARC | Hilton, D. A. | UNIV TEXAS-AUSTIN | NAS 1-14160 | Blackstock, D. T. | 41 | 3478 |
| LARC | Williams, T. S., Jr. | UNIV TEXAS-DALLAS | NAS 1-9699 | Hanson, W. B. | 99 | 3521 |
| LARC | Foye, R. L. | UNIV OF TORONTO | NGR 52-026-039 | Tennyson, R. C. | 41 | 3814 |
| LARC | Foye, R. L. | UNIV OF TORONTO | NSG 7219 | Tennyson, R. C. | 47 | 3816 |
| LARC | Williams, T. S., Jr. | UNIV OF UTAH | NAS 1-12705 | Shorthill, R. W. | 19 | 3557 |
| LARC | Hardesty, C. A. | UNIV OF UTAH | NGL 45-003-025 | Weil, H. | 31 | 3565 |
| LARC | Lawton, B. W. | UNIV OF UTAH | NSG 1272 | Shepherd, K. P. | 39 | 3569 |
| LARC | Kelly, W. L. | UNIV OF VIRGINIA | NAS 1-10210 | White, E. J. | 45 | 3662 |
| LARC | Martin, D. J. | UNIV OF VIRGINIA | NAS 1-12754 | Barnes, D. W. | 99 | 3663 |
| LARC | Schoonover, W. E., Jr. | UNIV OF VIRGINIA | NGR 47-005-181 | Kuhlthau, A. R. | 41 | 3671 |
| LARC | Lichtenstein, J. H. | UNIV OF VIRGINIA | NGR 47-005-208 | Jacobson, I. R. | 41 | 3674 |
| LARC | Schoenster, J. A. | UNIV OF VIRGINIA | NGR 47-005-219 | Haviland, J. K. | 41 | 3676 |
| LARC | Kilgore, R. A. | UNIV OF VIRGINIA | NSG 1010 | Zapata, R. N. | 41 | 3677 |
| LARC | Hueschen, R. M. | UNIV OF VIRGINIA | NSG 1101 | Cook, G. | 49 | 3678 |
| LARC | Shultz, L. R. | UNIV OF VIRGINIA | NSG 1128 | McAlpine, G. A. | 45 | 3679 |
| LARC | Barker, L. E. | UNIV OF VIRGINIA | NSG 1151 | Parrish, E. A., Jr. | 21 | 3680 |
| LARC | Leatherwood, J. D. | UNIV OF VIRGINIA | NSG 1180 | Jacobson, I. D. | 41 | 3681 |
| LARC | Husson, C. | UNIV OF VIRGINIA | NSG 1223 | Parrish, E. A., Jr. | 45 | 3682 |
| LARC | Alvarez, J. M. | UNIV OF VIRGINIA | NSG 1256 | Singer, S. F. | 11 | 3683 |
| LARC | Snyder, W. J. | UNIV OF VIRGINIA | NSG 1274 | Jacobson, I. D. | 49 | 3684 |
| LARC | Williams, T. S., Jr. | UNIV OF WASHINGTON | NAS 1-9694 | Leovy, C. B. | 31 | 3735 |
| LARC | Russell, J. M., III | UNIV OF WASHINGTON | NAS 1-14341 | Leovy, C. B. | 31 | 3736 |
| LARC | Heyson, H. H. | UNIV OF WASHINGTON | NGL 48-002-010 | Joppa, R. G. | 41 | 3744 |
| LARC | Heyson, H. H. | UNIV OF WASHINGTON | NGL 48-002-035 | Rae, W. H. | 41 | 3745 |
| LARC | Northam, G. B. | UNIV WISC-MADISON | NAS 1-14136 | Weinman, J. A. | 31 | 3771 |
| LARC | Campbell, J. W. | UNIV WISC-MADISON | NSG 1196 | Johnson, R. A. | 21 | 3798 |
| LARC | Young, W. H., Jr. | UNIV WISC-MILWAUKEE | NGR 50-007-001 | Bratanow, T. | 41 | 3806 |
| LARC | Crumbly, K. H. | UNIV OF WYOMING | NAS 1-13213 | Pepin, T. J. | 31 | 3808 |
| LARC | Hedgepeth, K. D. | UNIV OF WYOMING | NAS 1-13797 | Pepin, T. J. | 31 | 3809 |
| LARC | McCormick, M. P. | UNIV OF WYOMING | NAS 1-14373 | Pepin, T. J. | 31 | 3810 |
| LARC | Hohl, F. | VANDERBILT UNIVERSTY | NSG 1232 | Lee, J. H. | 13 | 3354 |
| LARC | Hohl, F. | VANDERBILT UNIVERSTY | NSG 1235 | Lee, J. H. | 13 | 3355 |
| LARC | Wilkins, J. R. | VIRGINIA COMNWLTH U | NGL 47-002-020 | Dalton, H. P. | 51 | 3686 |
| LARC | Bell, V. L., Jr. | VIRGINIA COMNWLTH U | NGR 47-002-041 | Stump, B. L. | 12 | 3687 |
| LARC | Creedon, J. F. | VA MILITARY INSTITUT | NGR 47-018-005 | Reid, G. F. | 41 | 3688 |
| LARC | Byvik, C. E. | VIRGINIA POLY INST | NAS 1-10646 | Wightman, J. P. | 31 | 3689 |
| LARC | Martin, D. J. | VIRGINIA POLY INST | NAS 1-13175 | Robertson, R. M. | 49 | 3690 |
| LARC | Posey, J. W. | VIRGINIA POLY INST | NAS 1-13884 | Nayfeh, A. H. | 13 | 3691 |
| LARC | Anderson, A. F. | VIRGINIA POLY INST | NGR 47-004-090 | Drew, D. R. | 41 | 3699 |
| LARC | Stein, B. A. | VIRGINIA POLY INST | NGR 47-004-108 | Lytton, J. L. | 47 | 3700 |
| LARC | Hayduk, R. J. | VIRGINIA POLY INST | NGR 47-004-114 | Kamat, M. P. | 44 | 3701 |
| LARC | Montgomery, R. C. | VIRGINIA POLY INST | NGR 47-004-116 | Caglayan, A. K. | 41 | 3702 |
| LARC | Davis, J. G., Jr. | VIRGINIA POLY INST | NGR 47-004-129 | Herakovich, C. T. | 49 | 3704 |
| LARC | Montgomery, R. C. | VIRGINIA POLY INST | NSG 1015 | Cliff, E. M. | 41 | 3705 |
| LARC | Smith, A. | VIRGINIA POLY INST | NSG 1020 | Sanzone, G. | 13 | 3706 |
| LARC | Newman, J. C., Jr. | VIRGINIA POLY INST | NSG 1024 | Smith, C. W. | 41 | 3707 |
| LARC | Johnston, N. J. | VIRGINIA POLY INST | NSG 1064 | Wolfe, J. F. | 12 | 3708 |
| LARC | Campbell, J. W. | VIRGINIA POLY INST | NSG 1071 | Hinkelmann, K. | 21 | 3709 |
| LARC | Young, P. R. | VIRGINIA POLY INST | NSG 1085 | Mason, J. G. | 12 | 3710 |
| LARC | Davidson, J. R. | VIRGINIA POLY INST | NSG 1099 | Heller, R. A. | 41 | 3711 |
| LARC | Kruszewski, E. T. | VIRGINIA POLY INST | NSG 1109 | Meirovitch, L. | 44 | 3712 |
| LARC | Kvaternik, R. G. | VIRGINIA POLY INST | NSG 1114 | Meirovitch, L. | 41 | 3713 |
| LARC | Sentell, R. J. | VIRGINIA POLY INST | NSG 1119 | Furr, A. K. | 13 | 3714 |
| LARC | Progar, D. J. | VIRGINIA POLY INST | NSG 1124 | Wightman, J. P. | 12 | 3715 |
| LARC | Campbell, J. W. | VIRGINIA POLY INST | NSG 1182 | Myers, R. H. | 31 | 3716 |
| LARC | Pellett, G. L. | VIRGINIA POLY INST | NSG 1195 | Wightman, J. P. | 12 | 3717 |
| LARC | Tenney, D. R. | VIRGINIA POLY INST | NSG 1214 | Houska, C. R. | 47 | 3718 |
| LARC | Dibattista, J. D. | VIRGINIA POLY INST | NSG 1230 | Drew, S. W. | 43 | 3719 |

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| LARC | Wichorek, G. R. | VIRGINIA POLY INST | NSG 1238 | Henneke, E. G. | 49 | 3720 |
| LARC | Montgomery, R. C. | VIRGINIA POLY INST | NSG 1239 | Van Landingham, H. E. | 41 | 3721 |
| LARC | Davis, J. G., Jr. | VIRGINIA POLY INST | NSG 1250 | Herakovich, C. T. | 49 | 3722 |
| LARC | Price, H. L. | VIRGINIA POLY INST | NSG 1254 | Stinchcomb, W. W. | 46 | 3723 |
| LARC | Hefner, J. N. | VIRGINIA POLY INST | NSG 1255 | Nayfeh, A. H. | 41 | 3724 |
| LARC | Yates, E. C., Jr. | VIRGINIA POLY INST | NSG 1262 | Nayfeh, A. H. | 41 | 3725 |
| LARC | Maahs, H. G. | VIRGINIA POLY INST | NSG 1275 | Frair, K. L. | 19 | 3726 |
| LARC | Miserentino, R. | VIRGINIA POLY INST | NSG 1276 | Hallauer, W. L., Jr. | 49 | 3727 |
| LARC | St Clair, T. L. | VIRGINIA POLY INST | NSG 1286 | Ogliaruso, M. A. | 12 | 3728 |
| LARC | Lester, H. C. | VIRGINIA STATE COL | NGL 47-014-009 | Agrawal, K. M. | 41 | 3733 |
| LARC | Wilson, J. W. | VIRGINIA STATE COL | NGR 47-014-006 | Stronach, C. E. | 13 | 3734 |
| LARC | Williams, T. S., Jr. | WASHINGTON UNIVERSTY | NAS 1-13889 | Arvidson, R. E. | 39 | 2705 |
| LARC | Heyman, J. S. | WASHINGTON UNIVERSTY | NSG 1016 | Miller, J. G. | 13 | 2713 |
| LARC | Kelly Iv, W. L. | WASHINGTON UNIVERSTY | NSG 1084 | Arvidson, R. E. | 32 | 2714 |
| LARC | Deaton, J. W. | WASHINGTON UNIVERSTY | NSG 1157 | Wu, E. M. | 46 | 2715 |
| LARC | Johnson, J. W. | WEST VIRGINIA UNIV | NGR 49-001-056 | Balanis, C. A. | 45 | 3768 |
| LARC | Noonan, K. W. | WICHITA STATE UNIV | NGR 17-003-021 | Wentz, W. H., Jr. | 41 | 2217 |
| LARC | McGhee, R. J. | WICHITA STATE UNIV | NSG 1165 | Wentz, W. H., Jr. | 41 | 2218 |
| LARC | Bowman, J. S., Jr. | WICHITA STATE UNIV | NSG 1189 | Craig, A. J. | 41 | 2219 |
| LARC | Morgan, H. L., Jr. | WICHITA STATE UNIV | NSG 1192 | Zumwalt, G. W. | 41 | 2220 |
| LARC | Outlaw, R. A. | XAVIER UNIV-LA | NSG 1218 | Ioup, J. W. | 13 | 2267 |
| LARC | Hueschen, R. M. | YOUNGSTOWN STATE U | NSG 1199 | Foulkes, R. H., Jr. | 49 | 3165 |
| LERC | Gaunter, J. W. | ARIZONA STATE UNIV | NSG 3075 | Metzger, D. E. | 41 | 1096 |
| LERC | Morris, J. F. | ARIZONA STATE UNIV | NSG 7019 | Jacobson, D. L. | 13 | 1097 |
| LERC | Decker, A. J. | AUBURN UNIV-AUBURN | NSG 3109 | Ranson, W. F. | 49 | 1032 |
| LERC | Roth, J. R. | BRIGHAM YOUNG UNIV | NSG 3068 | Gardner, A. L. | 13 | 3556 |
| LERC | Young, S. G. | CHICAGO STATE UNIV | NSG 3030 | Treptow, R. S. | 99 | 2034 |
| LERC | Sandercock, D. M. | CALIF INST OF TECH | NGL 05-002-136 | Rannie, W. D. | 41 | 1206 |
| LERC | Coe, H. H. | CAL STATE U-NRTHRDGE | NSG 3065 | Nypan, L. J. | 46 | 1266 |
| LERC | Priem, R. J. | CAL STATE U-SACRAMEN | NGR 05-058-003 | Reardon, F. H. | 42 | 1267 |
| LERC | Witzke, W. | CARNEGIE-MELLON UNIV | NAS 3-18929 | Bhat, G. K. | 47 | 3197 |
| LERC | Klopp, W. D. | CARNEGIE-MELLON UNIV | NGR 39-087-003 | Low, J. R., Jr. | 47 | 3198 |
| LERC | Klopp, W. D. | CARNEGIE-MELLON UNIV | NGR 39-087-047 | Low, J. R., Jr. | 47 | 3200 |
| LERC | Srawley, J. E. | CARNEGIE-MELLON UNIV | NGR 39-087-053 | Swedlow, J. L. | 46 | 3201 |
| LERC | Ludwig, L. P. | CARNEGIE-MELLON UNIV | NSG 3023 | Hughes, W. F. | 46 | 3202 |
| LERC | Nichols, L. D. | CASE WESTERN RESERVE | NGL 36-003-064 | Reshotko, E. | 19 | 3081 |
| LERC | Glasgow, T. K. | CASE WESTERN RESERVE | NGL 36-003-094 | Ebert, L. J. | 47 | 3082 |
| LERC | Andrews, C. W. | CASE WESTERN RESERVE | NGR 36-027-051 | Hehemann, R. H. | 47 | 3084 |
| LERC | Bishop, A. R. | CASE WESTERN RESERVE | NGR 36-027-064 | Reshotko, E. | 41 | 3086 |
| LERC | Kohl, F. J. | CASE WESTERN RESERVE | NSG 3009 | Mateescu, G. D. | 12 | 3089 |
| LERC | Probst, H. B. | CASE WESTERN RESERVE | NSG 3027 | Mitchell, T. E. | 47 | 3090 |
| LERC | Fortini, A. | CASE WESTERN RESERVE | NSG 3040 | Dybbs, A. | 47 | 3091 |
| LERC | Labus, T. L. | CASE WESTERN RESERVE | NSG 3053 | Ostrach, S. | 49 | 3092 |
| LERC | Bober, L. J. | CASE WESTERN RESERVE | NSG 3058 | Reshotko, E. | 41 | 3093 |
| LERC | Sockol, P. M. | CASE WESTERN RESERVE | NSG 3062 | Reshotko, E. | 41 | 3094 |
| LERC | Connolley, D. J. | CASE WESTERN RESERVE | NSG 3074 | Angus, J. C. | 43 | 3095 |
| LERC | Brewe, D. E. | CASE WESTERN RESERVE | NSG 3077 | Savage, M. | 46 | 3096 |
| LERC | Neustadter, H. E. | CASE WESTERN RESERVE | NSG 3078 | Zacks, S. | 21 | 3097 |
| LERC | Nice, A. W. | CASE WESTERN RESERVE | NSG 3085 | Pao, J. H. | 45 | 3098 |
| LERC | Anderson, B. H. | CASE WESTERN RESERVE | NSG 3115 | Lynch, W. C. | 41 | 3099 |
| LERC | Hirschberg, M. H. | CASE WESTERN RESERVE | NSG 7035 | Manson, S. S. | 47 | 3100 |
| LERC | Deissler, R. G. | CATHOLIC UNIVERSITY | NGR 09-005-099 | Ling, S. C. | 41 | 1839 |
| LERC | Raquet, C. A. | CENTRAL ST UNIV-OHIO | NGR 36-033-002 | Rubin, D. | 51 | 3102 |
| LERC | Fordyce, J. S. | CENTRAL ST UNIV-OHIO | NGR 36-033-003 | Craft, T. J., Sr. | 51 | 3103 |
| LERC | Serafini, T. T. | CLARKSON COL OF TECH | NSG 3100 | Jellinek, H. H. | 12 | 2861 |
| LERC | Townsend, D. P. | CLEVELAND STATE UNIV | NAS 3-18547 | Kasuba, R. | 46 | 3105 |
| LERC | Priem, R. J. | COLORADO STATE UNIV | NGR 06-002-095 | Mitchell, C. E. | 42 | 1739 |
| LERC | Kerslake, W. R. | COLORADO STATE UNIV | NGR 06-002-112 | Wilbur, P. J. | 46 | 1742 |

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| LERC | Serafini, J. S. | COLORADO STATE UNIV | NGR 06-002-147 | Wilhelm, H. E. | 42 | 1745 |
| LERC | Brown, G. V. | COLORADO STATE UNIV | NGR 06-002-159 | Etters, R. D. | 13 | 1746 |
| LERC | Mirtich, M. J. | COLORADO STATE UNIV | NSG 3011 | Kaufman, H. R. | 42 | 1750 |
| LERC | Domitz, S. | COLORADO STATE UNIV | NSG 3038 | Kaufman, H. R. | 19 | 1751 |
| LERC | Chubb, D. L. | COLORADO STATE UNIV | NSG 3060 | Collins, G. J. | 13 | 1752 |
| LERC | Theman, E. R. | COLORADO STATE UNIV | NSG 3086 | Kaufman, H. R. | 13 | 1753 |
| LERC | Glasgow, T. K. | COLUMBIA UNIVERSITY | NSG 3050 | Tien, J. K. | 47 | 2888 |
| LERC | Brown, G. V. | CORNELL UNIVERSITY | NGR 33-010-188 | Krumhansl, J. A. | 13 | 2922 |
| LERC | Aron, P. R. | CORNELL UNIVERSITY | NGR 33-010-189 | Ruoff, A. L. | 47 | 2923 |
| LERC | Marek, C. J. | CORNELL UNIVERSITY | NSG 3019 | Gouldin, F. C. | 41 | 2928 |
| LERC | Chamis, C. C. | CORNELL UNIVERSITY | NSG 3080 | Moon, F. C. | 41 | 2929 |
| LERC | Zeleznik, F. J. | DREXEL UNIVERSITY | NSG 3090 | Rosen, G. H. | 21 | 3208 |
| LERC | Baker, C. E. | GEORGE WASHINGTON U | NSR 09-010-027 | Schiff, H. I. | 59 | 1875 |
| LERC | Hein, G. F. | GEORGIA INST OF TECH | NAS 3-17827 | Zimmer, R. P. | 49 | 1961 |
| LERC | Conroy, M. J. | GEORGIA INST OF TECH | NAS 3-18901 | Bassett, H. L. | 45 | 1962 |
| LERC | Stevenson, S. M. | GEORGIA INST OF TECH | NAS 3-19700 | Camp, A. A. | 49 | 1963 |
| LERC | Stevens, G. | GEORGIA INST OF TECH | NAS 3-20110 | Hilson, N. | 45 | 1964 |
| LERC | Jones, W. R., Jr. | GEORGIA INST OF TECH | NGR 11-002-133 | Winer, W. O. | 46 | 1982 |
| LERC | Priem, R. J. | GEORGIA INST OF TECH | NGR 11-002-179 | Zinn, B. T. | 42 | 1985 |
| LERC | Huff, R. G. | GEORGIA INST OF TECH | NSG 3015 | Strahle, W. C. | 13 | 1991 |
| LERC | Feiler, C. E. | GEORGIA INST OF TECH | NSG 3036 | Zinn, B. T. | 41 | 1992 |
| LERC | Priem, R. J. | GEORGIA INST OF TECH | NSG 3052 | Zinn, B. T. | 42 | 1993 |
| LERC | Wedeven, L. D. | GEORGIA INST OF TECH | NSG 3106 | Winer, W. O. | 46 | 1994 |
| LERC | Buckley, D. H. | HIRAM COLLEGE | NSG 3026 | Wheeler, D. R. | 47 | 3106 |
| LERC | Sockol, P. M. | IOWA STATE UNIV | NSG 3033 | Serovy, G. K. | 41 | 2166 |
| LERC | Zuk, J. | JACKSON STATE UNIV | NSG 3004 | Chu, C. S. | 49 | 2654 |
| LERC | Ashbrook, R. L. | LEHIGH UNIVERSITY | NGL 39-007-007 | Kraft, R. W. | 47 | 3216 |
| LERC | Hacker, P. T. | MASS INST OF TECH | NAS 3-17534 | Senturia, S. D. | 19 | 2422 |
| LERC | Quatinetz, M. | MASS INST OF TECH | NGL 22-009-003 | Grant, N. J. | 47 | 2443 |
| LERC | McNally, W. D. | MASS INST OF TECH | NGL 22-009-383 | Kerrebrock, J. L. | 41 | 2452 |
| LERC | Siewert, R. D. | MASS INST OF TECH | NGR 22-009-339 | Witmer, E. A. | 41 | 2460 |
| LERC | Mularz, E. J. | MASS INST OF TECH | NGR 22-009-378 | Heywood, J. B. | 43 | 2462 |
| LERC | Baumeister, K. J. | MASS INST OF TECH | NGR 22-009-805 | Ingard, K. U. | 41 | 2486 |
| LERC | Weinberg, I. | MASS INST OF TECH | NSG 3017 | Gatos, H. C. | 13 | 2505 |
| LERC | Chamis, C. C. | MASS INST OF TECH | NSG 3044 | McGarry, F. G. | 49 | 2506 |
| LERC | Scheuermann, C. M. | MASS INST OF TECH | NSG 3046 | Flemings, M. C. | 47 | 2507 |
| LERC | Gluyas, R. E. | MASS INST OF TECH | NSG 3061 | Senturia, S. D. | 19 | 2508 |
| LERC | Vary, A. | MASS INST OF TECH | NSG 3064 | Williams, J. H., Jr. | 47 | 2509 |
| LERC | Norgren, C. T. | MASS INST OF TECH | NSG 3076 | Keck, J. C. | 41 | 2510 |
| LERC | Adamczyk, J. J. | MASS INST OF TECH | NSG 3079 | Kerrebrock, J. L. | 41 | 2511 |
| LERC | Reinmann, J. J. | MASS INST OF TECH | NSG 3088 | Lax, B. | 13 | 2512 |
| LERC | McNally, W. D. | MASS INST OF TECH | NSG 3093 | Kerrebrock, J. L. | 41 | 2513 |
| LERC | Norgren, C. T. | MASS INST OF TECH | NSG 3102 | Howard, J. B. | 43 | 2514 |
| LERC | Orange, T. W. | MICHIGAN STATE UNIV | NSG 3101 | Sharp, W. N., Jr. | 49 | 2548 |
| LERC | Fleming, D. P. | MISSISSIPPI STATE U | NGR 25-001-050 | Stiffler, A. K. | 46 | 2670 |
| LERC | Fleming, D. P. | MISSISSIPPI STATE U | NSG 3111 | Stiffler, A. K. | 46 | 2677 |
| LERC | Salzman, J. A. | NEW MEX ST U-LAS CR | NSG 3069 | Armstrong, R. L. | 13 | 2812 |
| LERC | Neustadter, H. E. | NEW YORK UNIVERSITY | NGR 33-016-197 | Hoydysh, W. G. | 39 | 2947 |
| LERC | Labus, T. L. | NEW YORK UNIVERSITY | NSG 3059 | Keller, J. B. | 49 | 2952 |
| LERC | Godlewski, M. P. | NO CAROLINA STATE U | NGR 34-002-195 | Hauser, J. R. | 45 | 3063 |
| LERC | Lad, R. A. | NORTHWESTERN UNIV | NGL 14-007-081 | Waber, J. T. | 13 | 2042 |
| LERC | Zaretsky, E. V. | NORTHWESTERN UNIV | NGR 14-007-084 | Cheng, H. | 46 | 2043 |
| LERC | Behrendt, D. R. | NORTHWESTERN UNIV | NGR 14-007-131 | Waber, J. T. | 13 | 2045 |
| LERC | Ludwig, L. P. | NORTHWESTERN UNIV | NSG 3039 | Burton, R. A. | 47 | 2048 |
| LERC | Zaretsky, E. V. | NORTHWESTERN UNIV | NSG 3042 | Cheng, H. S. | 46 | 2049 |
| LERC | Gray, H. R. | OHIO STATE UNIV | NGL 36-008-051 | Beck, F. H. | 47 | 3118 |
| LERC | Cooper, D. W. | OHIO STATE UNIV | NSG 3005 | Peake, W. H. | 45 | 3130 |
| LERC | Heidmann, M. F. | PENN STATE U-UNIV PK | NAS 3-17855 | Lakshminarayana, B. | 41 | 3227 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| LERC | Britsch, W. R. | PENN STATE U-UNIV PK | NGL 39-009-001 | Holl, J. W. | 41 | 3235 |
| LERC | Britsch, W. R. | PENN STATE U-UNIV PK | NGL 39-009-007 | Lakshminarayana, B. | 41 | 3238 |
| LERC | Hirschberg, M. H. | PENN STATE U-UNIV PK | NGR 39-009-034 | Zamrik, S. Y. | 47 | 3242 |
| LERC | Priem, R. J. | PENN STATE U-UNIV PK | NGR 39-009-077 | Faeth, G. M. | 42 | 3243 |
| LERC | Stone, J. R. | PENN STATE U-UNIV PK | NGR 39-009-270 | Arndt, R. E. | 41 | 3246 |
| LERC | Dittmar, J. H. | PENN STATE U-UNIV PK | NGR 39-009-275 | Henderson, R. E. | 46 | 3247 |
| LERC | Heidmann, M. F. | PENN STATE U-UNIV PK | NSG 3012 | Lakshminarayana, B. | 41 | 3253 |
| LERC | Sanders, W. A. | PENN STATE U-UNIV PK | NSG 3016 | Bradt, R. C. | 47 | 3254 |
| LERC | Sanger, N. L. | PENN STATE U-UNIV PK | NSG 3031 | Henderson, R. E. | 41 | 3255 |
| LERC | Sockol, P. M. | PENN STATE U-UNIV PK | NSG 3032 | Lakshminarayana, B. | 41 | 3256 |
| LERC | Stevens, N. J. | PENN STATE U-UNIV PK | NSG 3097 | Robinson, J. W. | 49 | 3257 |
| LERC | Will, H. A. | POLY INST OF NY | NSG 3108 | Lederman, S. | 13 | 2968 |
| LERC | Chamis, C. C. | PRINCETON UNIVERSITY | NGR 31-001-267 | Dowell, E. H. | 41 | 2772 |
| LERC | Stone, J. R. | PRINCETON UNIVERSITY | NGR 31-001-307 | Plett, E. G. | 41 | 2775 |
| LERC | Dunning, J. W., Jr. | PRINCETON UNIVERSITY | NGR 31-001-312 | Glassman, I. | 12 | 2776 |
| LERC | Minner, G. L. | PURDUE UNIVERSITY | NAS 3-18010 | Vaidya, P. G. | 41 | 2113 |
| LERC | Davison, H. W. | PURDUE UNIVERSITY | NGR 15-005-147 | Lecuyer, M. R. | 41 | 2127 |
| LERC | Bishop, A. R. | PURDUE UNIVERSITY | NGR 15-005-162 | Hoffman, J. D. | 41 | 2129 |
| LERC | Bishop, A. R. | PURDUE UNIVERSITY | NGR 15-005-191 | Hoffman, J. D. | 41 | 2131 |
| LERC | Feiler, C. E. | PURDUE UNIVERSITY | NSG 3029 | Peterson, A. M. | 46 | 2136 |
| LERC | Davidson, H. W. | PURDUE UNIVERSITY | NSG 3071 | L'ecuyer, M. R. | 41 | 2137 |
| LERC | Katsanis, T. | PURDUE UNIVERSITY | NSG 3105 | Thompson, H. D. | 41 | 2138 |
| LERC | Lad, R. A. | RENSSELAER POLY-NY | NGL 33-018-003 | Wiberly, S. E. | 47 | 2975 |
| LERC | Bill, R. C. | RENSSELAER POLY-NY | NGR 33-018-152 | Ling, F. F. | 41 | 2979 |
| LERC | Grimes, H. H. | RENSSELAER POLY-NY | NSG 3007 | Diefendorf, R. J. | 47 | 2983 |
| LERC | Reinmann, J. J. | RENSSELAER POLY-NY | NSG 3057 | Hickok, R. L., Jr. | 13 | 2984 |
| LERC | Lad, R. A. | RICE UNIVERSITY | NGL 44-006-001 | Rorschach, H. E. | 13 | 3390 |
| LERC | Anderson, W. J. | ROCHESTER INST TECH | NSG 3072 | Rieger, N. F. | 46 | 2987 |
| LERC | Colladay, R. S. | STANFORD UNIVERSITY | NAS 3-14336 | Kays, W. M. | 41 | 1339 |
| LERC | Graham, R. W. | STANFORD UNIVERSITY | NGL 05-020-134 | Kays, W. M. | 46 | 1384 |
| LERC | Whittenberger, J. D. | STANFORD UNIVERSITY | NGR 05-020-671 | Sherby, O. D. | 47 | 1410 |
| LERC | Baraona, C. R. | STATE UNIV NY-ALBANY | NSG 3095 | Corbett, J. W. | 39 | 2992 |
| LERC | Morris, J. F. | STATE UNIV NY-BUFFAL | NSG 7071 | Shaw, D. T. | 13 | 3003 |
| LERC | Levine, S. R. | STATE U NY-STONY BRK | NGR 33-015-160 | Seigle, L. L. | 47 | 3012 |
| LERC | Gordon, S. | STATE U NY-STONY BRK | NGR 33-015-163 | Berlad, A. L. | 39 | 3013 |
| LERC | Cochran, T. H. | STATE U NY-STONY BRK | NSG 3051 | Berlad, A. L. | 43 | 3018 |
| LERC | Hirschberg, M. H. | SYRACUSE UNIVERSITY | NGR 33-022-157 | Liu, H. W. | 47 | 3032 |
| LERC | Priem, R. J. | TENNESSEE TECH U | NGR 43-003-015 | Purdy, K. R. | 46 | 3328 |
| LERC | Priem, R. J. | TULANE UNIVERSITY | NGR 19-002-030 | O'Hara, J. C. | 41 | 2262 |
| LERC | Fordyce, J. S. | UNIV OF ALBUQUERQUE | NSG 3092 | Urzendowski, R. M. | 12 | 2813 |
| LERC | Stephens, J. R. | UNIV CALIF-BERKELEY | NGR 05-003-562 | Morris, J. W. | 47 | 1490 |
| LERC | Marek, C. J. | UNIV CALIF-BERKELEY | NSG 3028 | Branch, M. C. | 46 | 1503 |
| LERC | King, R. B. | UNIV CALIF-DAVIS | NAS 3-19850 | Cahill, T. | 47 | 1512 |
| LERC | Johnson, R. L. | UNIV CALIF-L ANGELES | NGR 05-007-338 | Amstutz, H. C. | 47 | 1570 |
| LERC | Savino, J. M. | UNIV CALIF-L ANGELES | NSG 3082 | Friedman, P. P. | 46 | 1581 |
| LERC | Woollam, J. A. | UNIV CALIF-SAN DIEGO | NSG 3034 | Oesterreicher, H. | 47 | 1634 |
| LERC | Cochran, T. H. | UNIV CALIF-SAN DIEGO | NSG 3047 | Williams, F. A. | 43 | 1635 |
| LERC | Woollam, J. A. | UNIV CALIF-SAN DIEGO | NSG 3055 | Webb, G. W. | 19 | 1636 |
| LERC | Woollam, J. A. | UNIV CALIF-SAN DIEGO | NSG 3103 | Luo, H. L. | 13 | 1637 |
| LERC | Rice, E. J. | UNIV OF CANTERBURY | NSG 7192 | Eversman, W. | 46 | 3824 |
| LERC | Prust, H. W., Jr. | UNIV OF CINCINNATI | NGR 36-004-064 | Tabakoff, W. | 41 | 3137 |
| LERC | Sundberg, G. R. | UNIV OF CINCINNATI | NSG 3022 | Henderson, H. T. | 45 | 3142 |
| LERC | Grier, N. T. | UNIV OF CINCINNATI | NSG 3024 | Nevin, J. H. | 45 | 3143 |
| LERC | Jones, R. E. | UNIV OF CINCINNATI | NSG 3045 | Kauffman, C. W. | 41 | 3144 |
| LERC | Davison, H. W. | UNIV OF CINCINNATI | NSG 3066 | Tabakoff, W. | 41 | 3145 |
| LERC | Blue, J. W. | UNIV OF CINCINNATI | NSG 3091 | Jha, S. | 13 | 3146 |
| LERC | Deissler, R. G. | UNIV COLORADO-BOLDR | NGR 06-003-208 | Uberoi, M. S. | 41 | 1783 |
| LERC | Hein, G. F. | UNIV OF DAYTON | NAS 3-19699 | Engler, N. A. | 73 | 3147 |

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| LERC | Stevenson, S. M. | UNIV OF DAYTON | NAS 3-20365 | Martino, J. | 39 | 3148 |
| LERC | Post, R. E. | UNIV OF FLORIDA | NGL 10-005-022 | Walker, R. D., Jr. | 43 | 1922 |
| LERC | Sheibley, D. W. | UNIV OF FLORIDA | NGR 10-005-182 | Walker, R. D., Jr. | 43 | 1927 |
| LERC | Godlewski, M. P. | UNIV OF FLORIDA | NSG 3018 | Lindholm, F. A. | 45 | 1929 |
| LERC | Bober, L. J. | UNIV ILLINOIS-URBANA | NGL 14-005-140 | Chow, W. L. | 41 | 2076 |
| LERC | Karchmer, A. M. | UNIV ILLINOIS-URBANA | NGR 14-005-149 | Jones, B. G. | 41 | 2078 |
| LERC | Marek, C. J. | UNIV ILLINOIS-URBANA | NGR 14-005-193 | Strehlow, R. A. | 41 | 2081 |
| LERC | Dunning, J. W., Jr. | UNIV ILLINOIS-URBANA | NGR 14-005-200 | Verdeyen, J. T. | 13 | 2083 |
| LERC | Siewert, R. D. | UNIV ILLINOIS-URBANA | NSG 3008 | Strehlow, R. A. | 13 | 2091 |
| LERC | Cochran, T. H. | UNIV ILLINOIS-URBANA | NSG 3043 | Strehlow, R. A. | 43 | 2092 |
| LERC | Siewert, R. D. | UNIV ILLINOIS-URBANA | NSG 3056 | Strehlow, R. A. | 49 | 2093 |
| LERC | Scribbs, H. W. | UNIV ILLINOIS-URBANA | NSG 3098 | Conry, T. F. | 46 | 2094 |
| LERC | Couch, J. P. | UNIV OF KANSAS | NSG 3087 | Lenzen, K. H. | 46 | 2209 |
| LERC | Sanders, W. A. | UNIV OF KENTUCKY | NGL 18-001-042 | Leipold, M. H. | 47 | 2227 |
| LERC | Haggard, J. B., Jr. | UNIV OF KENTUCKY | NGR 18-001-083 | Hsu, N. N. | 13 | 2229 |
| LERC | Gordon, S. | UNIV OF KENTUCKY | NGR 18-001-086 | Conger, W. L. | 12 | 2230 |
| LERC | Brown, W. F., Jr. | UNIV OF KENTUCKY | NSG 3013 | Conrad, H. | 47 | 2232 |
| LERC | Simoneau, R. J. | UNIV MARYLAND-COL PK | NGR 21-002-344 | Sengers, J. V. | 13 | 2333 |
| LERC | Coles, W. D. | UNIV MARYLAND-COL PK | NGR 21-002-400 | Spain, I. L. | 13 | 2338 |
| LERC | Stephens, J. R. | UNIV MARYLAND-COL PK | NSG 3001 | Drew, H. D. | 47 | 2348 |
| LERC | Shannon, J. L., Jr. | UNIV OF MIAMI | NGR 10-007-118 | Craig, H. L., Jr. | 47 | 1944 |
| LERC | Wright, D. | UNIV MICH-ANN ARBOR | NAS 3-19533 | Ferris, J. | 42 | 2554 |
| LERC | Ream, L. W. | UNIV MICH-ANN ARBOR | NAS 3-20051 | Kroeger, R. A. | 46 | 2555 |
| LERC | Freche, J. C. | UNIV MICH-ANN ARBOR | NGL 23-005-005 | Wilson, D. J. | 47 | 2574 |
| LERC | Haggard, J. B., Jr. | UNIV MICH-ANN ARBOR | NGR 23-005-536 | Nicholls, J. A. | 42 | 2584 |
| LERC | Weigand, A. J. | U MINN-MNPLS-ST PAUL | NSG 3041 | Wehner, G. K. | 13 | 2640 |
| LERC | Morris, J. F. | U MINN-MNPLS-ST PAUL | NSG 3094 | Chanin, L. M. | 19 | 2641 |
| LERC | Gutierrez, O. A. | UNIV MISS-UNIVERSITY | NAS 3-19431 | Shields, F. D. | 41 | 2679 |
| LERC | Wedeven, L. D. | UNIV MO-ROLLA | NSG 3113 | Medrow, R. A. | 46 | 2704 |
| LERC | Hyland, R. F. | UNIV OF NEW MEXICO | NAS 3-18522 | Long, W. W. | 49 | 2815 |
| LERC | Hyland, R. F. | UNIV OF NEW MEXICO | NAS 3-19434 | Burch, E. | 49 | 2816 |
| LERC | Cochran, T. H. | UNIV OF NOTRE DAME | NAS 3-20087 | Kanury, M. | 13 | 2143 |
| LERC | Feiler, C. E. | UNIV OF NOTRE DAME | NSG 3037 | Atassi, H. | 41 | 2145 |
| LERC | Lehtinen, B. | UNIV OF NOTRE DAME | NSG 3048 | Leake, R. J. | 45 | 2146 |
| LERC | Kish, J. A. | UNIV OF NOTRE DAME | NSG 3070 | Nahas, J. J. | 19 | 2147 |
| LERC | Baker, C. E. | UNIV OF PITTSBURGH | NGR 39-011-161 | Kaufman, F. | 12 | 3284 |
| LERC | Stephens, J. R. | UNIV OF PITTSBURGH | NGR 39-011-164 | Meier, G. H. | 47 | 3285 |
| LERC | Fordyce, J. S. | UNIV OF PITTSBURGH | NSG 3002 | Liu, C. C. | 12 | 3288 |
| LERC | O'Donnell, P. M. | UNIV OF PITTSBURGH | NSG 3010 | Liv, C. C. | 12 | 3289 |
| LERC | Fordyce, J. S. | UNIV OF SO ALABAMA | NSG 3003 | Weber, F. N., Jr. | 13 | 1082 |
| LERC | Triner, J. E. | UNIV OF SO FLORIDA | NSG 3096 | Garrett, S. J. | 45 | 1950 |
| LERC | Dorsch, R. G. | UNIV OF SOUTHERN CAL | NAS 3-17857 | Laufer, J. | 41 | 1705 |
| LERC | Olsen, W. A. | UNIV OF SOUTHERN CAL | NSG 3025 | Laufer, J. | 41 | 1718 |
| LERC | Chubb, D. L. | UNIV SOUTHWESTERN LA | NSG 3049 | Matese, J. J. | 13 | 2265 |
| LERC | Dittmar, J. H. | UNIV TENNESSEE-KNOXV | NGR 43-001-134 | Lunsdaine, E. | 41 | 3340 |
| LERC | Reshotko, M. | UNIV TENNESSEE-KNOXV | NGR 43-001-135 | Maus, J. R. | 41 | 3341 |
| LERC | Fralich, R. W. | UNIV TEXAS-AUSTIN | NSG 1268 | Craig, R. R. | 49 | 3509 |
| LERC | Roth, J. R. | UNIV TEXAS-AUSTIN | NSG 3089 | Powers, E. J. | 45 | 3512 |
| LERC | Ramler, J. R. | UNIV OF TOLEDO | NAS 3-17826 | Leininger, G. G. | 49 | 3151 |
| LERC | Willloh, R. G. | UNIV OF TOLEDO | NGR 36-010-024 | Leininger, G. G. | 49 | 3153 |
| LERC | Lehtinen, B. | UNIV OF TOLEDO | NSG 3063 | Leininger, G. G. | 45 | 3155 |
| LERC | Lehtinen, B. | UNIV OF TOLEDO | NSG 3084 | Leininger, G. G. | 45 | 3156 |
| LERC | Connolley, D. J. | UNIV OF TOLEDO | NSG 3099 | Rush, W. F. | 13 | 3157 |
| LERC | Lad, R. A. | UNIV OF WASHINGTON | NGL 48-002-004 | Mueller, J. I. | 47 | 3743 |
| LERC | Baumeister, K. J. | VIRGINIA POLY INST | NAS 3-18553 | Robertson, R. A. | 49 | 3692 |
| LERC | Diedrich, J. H. | VIRGINIA POLY INST | NSG 3073 | Jakubowski, A. K. | 41 | 3731 |
| LERC | Dunning, J. W., Jr. | WAYNE STATE UNIV | NGR 23-006-063 | Wang, E. Y. | 45 | 2608 |
| LERC | Brandhorst, H. W., Jr. | WAYNE STATE UNIV | NSG 3014 | Wang, E. Y. | 13 | 2610 |

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| LERC | Dunning, J. W., Jr. | WAYNE STATE UNIV | NSG 3035 | Yu, F. T. | 45 | 2611 |
| LERC | Brandhorst, H. W., Jr. | WAYNE STATE UNIV | NSG 3081 | Wang, E. Y. | 13 | 2612 |
| LERC | Phillips, B. | WEST VIRGINIA UNIV | NAS 3-19725 | Wen, C. Y. | 49 | 3767 |
| LERC | Rice, E. J. | WICHITA STATE UNIV | NGR 17-003-018 | Eversman, W. | 13 | 2216 |
| LERC | Hsu, L. C. | WILBERFORCE UNIV | NSG 3067 | Stickney, P. B. | 12 | 3162 |
| LERC | Baker, C. E. | YORK UNIVERSITY | NGR 52-134-005 | Schiff, H. I. | 31 | 3817 |
| LERC | Morris, J. F. | OREGON GRADUATE CTR | NSG 3054 | Swanson, L. W. | 47 | 3179 |
| MSFC | Downs, S. W., Jr. | ALABAMA A&M UNIV | NGR 01-001-023 | Sharma, G. C. | 51 | 1002 |
| MSFC | McDonough, G. F. | ALABAMA A&M UNIV | NGR 01-001-025 | Manger, M. C. | 39 | 1003 |
| MSFC | Parnell, T. A. | ALABAMA A&M UNIV | NSG 8001 | George, M. C. | 11 | 1004 |
| MSFC | Kurtz, R. L. | ALABAMA A&M UNIV | NSG 8011 | Lee, C. T. | 13 | 1005 |
| MSFC | Lowrey, D. O. | ALABAMA A&M UNIV | NSG 8013 | Weather, G. D. | 45 | 1006 |
| MSFC | Gross, K. W. | ALABAMA A&M UNIV | NSG 8022 | Saha, H. | 13 | 1007 |
| MSFC | Bannister, T. C. | ALABAMA A&M UNIV | NSG 8033 | Lal, R. B. | 13 | 1008 |
| MSFC | Jeffreys, H. B. | ALABAMA A&M UNIV | NSG 8037 | Murty, S. S. | 13 | 1009 |
| MSFC | Humphries, W. R. | ALABAMA A&M UNIV | NSG 8041 | Saha, H. | 46 | 1010 |
| MSFC | Taylor, K. R. | ALFRED UNIVERSITY | NAS 8-31711 | Lacourse, W. C. | 19 | 2843 |
| MSFC | Falls, L. W. | APPALACHIAN STATE U | NAS 8-29286 | Kitchens, H. | 21 | 3043 |
| MSFC | Jex, D. W. | ATHENS COLLEGE | NAS 8-28058 | McNutt, R. C. | 13 | 1011 |
| MSFC | Zwiener, J. M. | ATHENS COLLEGE | NAS 8-30561 | McNutt, R. C. | 13 | 1012 |
| MSFC | Moore, W. W., Jr. | ATHENS COLLEGE | NAS 8-30880 | Martin, A. M., III | 13 | 1013 |
| MSFC | Arnett, G. M. | ATHENS COLLEGE | NAS 8-31731 | Workman, G. L. | 12 | 1014 |
| MSFC | Curry, J. E. | ATLANTA UNIVERSITY | NSG 8019 | Reed, J. L. | 12 | 1952 |
| MSFC | Emens, F. H. | AUBURN UNIV-AUBURN | NAS 8-20765 | Irwin, J. D. | 45 | 1015 |
| MSFC | White, J. B. | AUBURN UNIV-AUBURN | NAS 8-26930 | Carroll, B. D. | 45 | 1016 |
| MSFC | Craighead, P. T. | AUBURN UNIV-AUBURN | NAS 8-29852 | Boland, J. S., III | 49 | 1017 |
| MSFC | Downs, S. W., Jr. | AUBURN UNIV-AUBURN | NAS 8-29856 | Hagler, T. B. | 51 | 1018 |
| MSFC | McKannan, E. C. | AUBURN UNIV-AUBURN | NAS 8-29881 | Vachon, R. I. | 72 | 1019 |
| MSFC | Duncan, J. R., Jr. | AUBURN UNIV-AUBURN | NAS 8-30248 | Bennett, A. G. | 41 | 1020 |
| MSFC | Cummings, R. E. | AUBURN UNIV-AUBURN | NAS 8-30654 | Vachon, R. I. | 21 | 1021 |
| MSFC | Gould, J. M. | AUBURN UNIV-AUBURN | NAS 8-31190 | Carroll, B. D. | 45 | 1022 |
| MSFC | Keer, J. H. | AUBURN UNIV-AUBURN | NAS 8-31223 | Pinson, L. J. | 45 | 1023 |
| MSFC | Matheney, J. L. | AUBURN UNIV-AUBURN | NAS 8-31572 | Carroll, B. D. | 45 | 1024 |
| MSFC | Shackelford, B. W. | AUBURN UNIV-AUBURN | NCA 8-106 | Sforzini, R. H. | 12 | 1025 |
| MSFC | Shackelford, B. W. | AUBURN UNIV-AUBURN | NCA 8-108 | Sforzini, R. H. | 43 | 1026 |
| MSFC | Cook, L. J. | AUBURN UNIV-AUBURN | NCA 8-109 | Bell, L. | 21 | 1027 |
| MSFC | Shackelford, B. W. | AUBURN UNIV-AUBURN | NCA 8-120 | Sforzini, R. H. | 43 | 1028 |
| MSFC | Shackelford, B. W. | AUBURN UNIV-AUBURN | NCA 8-124 | Sforzini, R. H. | 43 | 1029 |
| MSFC | Hastings, L. J. | BALL STATE UNIVERSTY | NCA 8-101 | Cosby, R. M. | 13 | 2098 |
| MSFC | Hastings, L. J. | BALL STATE UNIVERSTY | NCA 8-103 | Cosby, R. M. | 13 | 2099 |
| MSFC | Hastings, L. J. | BALL STATE UNIVERSTY | NCA 8-121 | Cosby, R. M. | 49 | 2100 |
| MSFC | Kent, M. I. | BENEDICT COLLEGE | NSG 8004 | Kinard, J. T. | 12 | 3303 |
| MSFC | Krome, H. O. | CALIF INST OF TECH | NAS 8-27978 | Stone, E. C. | 11 | 1198 |
| MSFC | Gross, L. A. | CALIF INST OF TECH | NAS 8-29313 | Acosta, A. J. | 46 | 1199 |
| MSFC | Schafer, C. F. | CASE WESTERN RESERVE | NAS 8-31802 | Ostrach, S. | 46 | 3079 |
| MSFC | Bannister, T. C. | CASE WESTERN RESERVE | NAS 8-31907 | Ostrach, S. | 12 | 3080 |
| MSFC | Tatler, K. R. | CLARKSON COL OF TECH | NAS 8-31708 | Cole, R. | 19 | 2859 |
| MSFC | Taylor, K. R. | CLARKSON COL OF TECH | NAS 8-31709 | Wilcox, W. R. | 19 | 2860 |
| MSFC | Turner, R. E. | COLORADO STATE UNIV | NAS 8-28590 | Sadeh, W. Z. | 39 | 1725 |
| MSFC | Cliff, W. C. | COLORADO STATE UNIV | NAS 8-29583 | Cermak, J. E. | 44 | 1726 |
| MSFC | Berge, L. H. | COLORADO STATE UNIV | NAS 8-30250 | Jones, T. B. | 45 | 1727 |
| MSFC | Cliff, W. C. | COLORADO STATE UNIV | NAS 8-31237 | Winn, C. B. | 46 | 1728 |
| MSFC | Fichtl, G. H. | COLORADO STATE UNIV | NAS 8-31347 | Winn, C. B. | 49 | 1729 |
| MSFC | Fichtl, G. H. | COLORADO STATE UNIV | NAS 8-31673 | Edwards, H. W. | 46 | 1730 |
| MSFC | Fichtl, G. H. | COLORADO STATE UNIV | NAS 8-31688 | Sandhorn, V. A. | 44 | 1731 |
| MSFC | Manning, H. S. | COLUMBIA UNIVERSITY | NAS 8-30753 | Novick, R. | 11 | 2872 |
| MSFC | Nerren, B. H. | CORNELL UNIV-MED CTR | NAS 8-31513 | Rubin, A. L. | 99 | 2938 |
| MSFC | Paludan, C. T. | DILLARD UNIVERSITY | NSG 8018 | Rogers, R. | 39 | 2237 |

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|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| MSFC | Hill, K. | DREXEL UNIVERSITY | NAS 8-31235 | Kreitzberg, C. W. | 31 | 3206 |
| MSFC | Kroes, R. L. | FISK UNIVERSITY | NGR 43-021-002 | Silberman, E. | 13 | 3317 |
| MSFC | Parnell, T. A. | FISK UNIVERSITY | NSG 8007 | Neugebauer, G. | 13 | 3318 |
| MSFC | Parnell, T. A. | FISK UNIVERSITY | NSG 8035 | Mickens, R. E. | 12 | 3319 |
| MSFC | Eudy, R. G. | GEORGIA INST OF TECH | H-23602B | Brown, J. | 47 | 1958 |
| MSFC | Kerr, J. H. | GEORGIA INST OF TECH | NAS 8-30246 | Callen, W. R. | 13 | 1969 |
| MSFC | Kerr, J. H. | GEORGIA INST OF TECH | NAS 8-30534 | Shackelford, R. G. | 99 | 1970 |
| MSFC | Bianca, C. J. | GEORGIA INST OF TECH | NAS 8-30617 | Hanagud, S. V. | 19 | 1971 |
| MSFC | Paludan, C. T. | GEORGIA INST OF TECH | NAS 8-30653 | Dees, J. W. | 39 | 1972 |
| MSFC | Smith, O. E. | GEORGIA INST OF TECH | NAS 8-30657 | Justus, C. G. | 49 | 1973 |
| MSFC | Huggins, C. T. | GEORGIA INST OF TECH | NAS 8-30919 | Walsh, J. R. | 21 | 1974 |
| MSFC | Kerr, J. H. | GEORGIA INST OF TECH | NAS 8-31193 | Callen, W. R. | 13 | 1975 |
| MSFC | Smith, H. | GEORGIA INST OF TECH | NAS 8-31344 | Walsh, J. R. | 13 | 1976 |
| MSFC | Downs, S. W., Jr. | GEORGIA INST OF TECH | NAS 8-31850 | Faust, N. L. | 39 | 1977 |
| MSFC | Downs, S. W., Jr. | GEORGIA INST OF TECH | NAS 8-31990 | Faust, C. E. | 32 | 1978 |
| MSFC | Bensko, J. | GEORGIA SOUTHWTN COL | NAS 8-30884 | Arden, D. D. | 32 | 2000 |
| MSFC | Kroes, R. L. | GRAMBLING STATE UNIV | NGR 19-011-016 | Murty, A. N. | 13 | 2240 |
| MSFC | Chappell, C. R. | GRAMBLING STATE UNIV | NSG 8034 | Cummings, W. D. | 13 | 2241 |
| MSFC | Unavailable | HARVARD UNIVERSITY | NAS 5-3949 | Goldberg, L. | 11 | 2381 |
| MSFC | Snoddy, W. C. | HARVARD UNIVERSITY | NAS 8-31374 | Vaiana, G. S. | 13 | 2388 |
| MSFC | Bordelon, C. S. | HARVARD UNIVERSITY | NAS 8-31549 | Noyes, R. W. | 13 | 2389 |
| MSFC | Schafer, C. F. | HOWARD UNIVERSITY | NAS 8-30252 | Ukanwa, A. O. | 13 | 1876 |
| MSFC | Wolverton, B. C. | JACKSON STATE UNIV | NGR 25-011-005 | Sekhon, B. S. | 39 | 2653 |
| MSFC | Wolverton, B. C. | JACKSON STATE UNIV | NSG 8015 | Perkins, J. | 39 | 2655 |
| MSFC | Wolverton, B. C. | JACKSON STATE UNIV | NSG 8023 | Sekhon, B. S. | 39 | 2656 |
| MSFC | Roberts, W. T. | JOHNS HOPKINS UNIV | NAS 8-31413 | Feldman, P. D. | 31 | 2281 |
| MSFC | Patterson, W. J. | KENTUCKY STATE UNIV | NSG 8008 | Marano, G. A. | 12 | 2223 |
| MSFC | Bond, J. B. | LEHIGH UNIVERSITY | NAS 8-28654 | Vander Hoff, J. W. | 47 | 3211 |
| MSFC | Taylor, K. R. | LEHIGH UNIVERSITY | NAS 8-31706 | Vander Hoff, J. W. | 19 | 3212 |
| MSFC | Taylor, K. K. | LEHIGH UNIVERSITY | NAS 8-31707 | Micale, E. J. | 19 | 3213 |
| MSFC | Cliff, W. C. | LEHIGH UNIVERSITY | NCA 8-123 | Poehlein, G. W. | 12 | 3215 |
| MSFC | Hamby, H. G. | LA STATE U-BAT ROUGE | NAS 8-30380 | Farmer, R. C. | 13 | 2243 |
| MSFC | Paludan, C. T. | LA STATE U-BAT ROUGE | NAS 8-30620 | Maples, D. | 39 | 2244 |
| MSFC | Bodie, W. G. | MASS INST OF TECH | NAS 8-27972 | Bradt, H. V. | 11 | 2431 |
| MSFC | Jordan, W. E. | MASS INST OF TECH | NAS 8-27975 | Lewin, W. H. | 11 | 2432 |
| MSFC | Decker, R. | MASS INST OF TECH | NAS 8-30301 | Boyd, P. | 13 | 2433 |
| MSFC | Davidson, M. C. | MASS INST OF TECH | NAS 8-30537 | Gatos, H. C. | 47 | 2434 |
| MSFC | Adams, W. R. | MASS INST OF TECH | NAS 8-30576 | Gatos, H. C. | 19 | 2435 |
| MSFC | Manning, H. S. | MASS INST OF TECH | NAS 8-30752 | Clark, G. W. | 11 | 2436 |
| MSFC | Fichti, G. H. | MASS INST OF TECH | NAS 8-31149 | Hart, J. E. | 32 | 2437 |
| MSFC | Chassay, R. P. | MASS INST OF TECH | NAS 8-31350 | Uhlmann, D. R. | 47 | 2438 |
| MSFC | Reeves, F. A. | MASS INST OF TECH | NAS 8-31552 | Hopper, R. W. | 47 | 2439 |
| MSFC | Dalins, I. | MASS INST OF TECH | NGL 22-009-125 | Gatos, H. C. | 13 | 2449 |
| MSFC | Patterson, W. C. | MEMPHIS ST UNIV | NAS 8-31189 | Perry, E. | 46 | 3320 |
| MSFC | Hollis, B. R., Jr. | MISSISSIPPI STATE U | NAS 8-26749 | Gassaway, J. D. | 13 | 2659 |
| MSFC | Pitts, E. H. | MISSISSIPPI STATE U | NAS 8-30618 | Rogers, T. W. | 45 | 2660 |
| MSFC | Daniels, J. L., Jr. | MISSISSIPPI STATE U | NAS 8-30623 | Miller, W. F. | 39 | 2661 |
| MSFC | Smith, H. F. | MISSISSIPPI STATE U | NAS 8-31373 | Ingels, F. M. | 45 | 2662 |
| MSFC | Guynes, B. U. | MISSISSIPPI STATE U | NAS 8-31568 | Mitchell, G. | 41 | 2663 |
| MSFC | Clever, W. W. | MISSISSIPPI STATE U | NAS 8-31770 | Shepard, W. S. | 41 | 2664 |
| MSFC | King, H. M. | MISSISSIPPI STATE U | NCA 8-107 | Hall, W. B. | 47 | 2667 |
| MSFC | Wolverton, B. C. | MISS VALLEY ST UNIV | NSG 8009 | Sethi, S. L. | 51 | 2678 |
| MSFC | Stephens, J. B. | MOREHOUSE COLLEGE | NGL 11-008-001 | Gales, J. N. | 12 | 2002 |
| MSFC | Shriver, E. L. | MOREHOUSE COLLEGE | NSG 8014 | Spight, C. | 13 | 2004 |
| MSFC | Stone, N. H. | MOREHOUSE COLLEGE | NSG 8020 | Turner, J. M. | 13 | 2005 |
| MSFC | Clemons, J. M. | MOREHOUSE COLLEGE | NSG 8030 | Frazier, D. O. | 12 | 2006 |
| MSFC | Williams, J. R. | MOREHOUSE COLLEGE | NSG 8039 | Spight, C. | 13 | 2007 |
| MSFC | Patterson, W. J. | MORRIS BROWN COLLEGE | NSG 8027 | Weaver, F. | 12 | 2008 |

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| MSFC | Paludan, C. T. | NO CAROLINA STATE U | NAS 8-31984 | Welby, G. | 39 | 3058 |
| MSFC | Downs, S. W., Jr. | NORTH GEORGIA COL | NAS 8-30619 | Biesbrock, J. A. | 51 | 2009 |
| MSFC | Kent, M. I. | OAKWOOD COLLEGE | NSG 8017 | Richardson, D. | 12 | 1033 |
| MSFC | Costes, N. C. | OHIO STATE UNIV | NAS 8-31195 | Mueller, I. I. | 19 | 3116 |
| MSFC | Bannister, T. C. | PAINE COLLEGE | NSG 8002 | Owais, M. | 13 | 2010 |
| MSFC | Fichtl, G. H. | PENN STATE U-UNIV PK | NAS 8-21140 | Blackadar, A. K. | 31 | 3233 |
| MSFC | Fichtl, G. H. | PENN STATE U-UNIV PK | NAS 8-27334 | Long, S. R. | 31 | 3234 |
| MSFC | Davidson, M. C. | RENSSELAER POLY-NY | NAS 8-26146 | Wiedmann, H. | 47 | 2971 |
| MSFC | Adams, W. R. | RENSSELAER POLY-NY | NAS 8-28307 | Wiedemeier, H. | 19 | 2972 |
| MSFC | Adams, W. R. | RENSSELAER POLY-NY | NAS 8-30578 | Wiedemeier, H. | 19 | 2973 |
| MSFC | Snyder, R. S. | RENSSELAER POLY-NY | NAS 8-31705 | MacCrone, R. K. | 19 | 2974 |
| MSFC | Roberts, W. T. | RICE UNIVERSITY | NAS 8-31679 | Anderson, H. R., Jr. | 13 | 3385 |
| MSFC | Berge, L. H. | RICE UNIVERSITY | NAS 8-32030 | Margrave, J. L. | 13 | 3386 |
| MSFC | Urban, E. W. | SO CAROLINA ST COL | NSG 8021 | Payne, J. E. | 13 | 3308 |
| MSFC | Kent, M. I. | SO UNIV-BATON ROUGE | NGR 19-005-003 | Liu, K. H. | 19 | 2250 |
| MSFC | Trenkle, J. J. | SO UNIV-BATON ROUGE | NSG 8016 | Scott, R. L., Jr. | 13 | 2254 |
| MSFC | Williamson, J. G. | SO UNIV-BATON ROUGE | NSG 8025 | Frederick, D. K. | 46 | 2255 |
| MSFC | Trenkle, J. J. | SO UNIV-BATON ROUGE | NSG 8028 | Anderson, J. A. | 45 | 2256 |
| MSFC | Trenkle, J. J. | SO UNIV-BATON ROUGE | NSG 8029 | Scott, R. L., Jr. | 46 | 2257 |
| MSFC | Bass, B. G. | STANFORD UNIVERSITY | NAS 8-31571 | Walker, A. B., Jr. | 13 | 1346 |
| MSFC | Roberts, W. T. | STANFORD UNIVERSITY | NAS 8-31769 | Da Rosa, A. V. | 13 | 1347 |
| MSFC | Potter, R. A. | STANFORD UNIVERSITY | NGR 05-020-019 | Fairbank, W. M. | 13 | 1395 |
| MSFC | Gary, G. A. | STATE UNIV NY-ALBANY | NAS 8-30251 | Weinberg, J. L. | 13 | 2989 |
| MSFC | Weinberg, J. L. | STATE UNIV NY-ALBANY | NAS 8-31902 | Schuerman, D. W. | 39 | 2990 |
| MSFC | Gary, G. A. | STATE UNIV NY-ALBANY | NSG 8040 | Weinberg, J. L. | 11 | 2996 |
| MSFC | Allen, R. E. | STATE UNIV NY-BUFFAL | NAS 8-31292 | Bigazzi, P. E. | 51 | 2998 |
| MSFC | Van Vleck, E. | STATE UNIV NY-BUFFAL | NAS 8-31434 | Jain, A. K. | 21 | 2999 |
| MSFC | Dalins, I. | TALLADEGA COLLEGE | NGR 01-007-009 | Breecher, J. | 13 | 1034 |
| MSFC | Humphries, W. R. | TENNESSEE STATE UNIV | NSG 8012 | Houghton, R. | 46 | 3323 |
| MSFC | Cliff, W. C. | TENNESSEE STATE UNIV | NSG 8032 | Busby, M. R. | 46 | 3324 |
| MSFC | Kadrmaz, K. A. | TENNESSEE TECH U | NAS 8-31252 | Childress, R. Q. | 45 | 3325 |
| MSFC | Humphries, W. R. | TENNESSEE TECH U | NAS 8-31564 | Griggs, E. I. | 31 | 3326 |
| MSFC | Humphries, W. R. | TENNESSEE TECH U | NCA 8-102 | Griggs, E. I. | 45 | 3327 |
| MSFC | Nowakowski, M. F. | TEXAS A&M UNIVERSITY | NAS 8-26379 | Porter, W. A. | 45 | 3410 |
| MSFC | Turner, R. E. | TEXAS A&M UNIVERSITY | NAS 8-26751 | Scoggins, J. R. | 31 | 3411 |
| MSFC | Fichtl, G. H. | TEXAS A&M UNIVERSITY | NAS 8-29582 | Brundidge, K. C. | 31 | 3412 |
| MSFC | Fichtl, G. H. | TEXAS A&M UNIVERSITY | NAS 8-29764 | Scoggins, J. R. | 31 | 3413 |
| MSFC | Fichtl, G. H. | TEXAS A&M UNIVERSITY | NAS 8-31234 | Brundidge, K. C. | 31 | 3414 |
| MSFC | Key, J. E. | TEXAS A&M UNIVERSITY | NAS 8-31332 | Strickland, J. A. | 21 | 3415 |
| MSFC | Hill, C. K. | TEXAS A&M UNIVERSITY | NAS 8-31773 | Scoggins, J. R. | 31 | 3416 |
| MSFC | Crowell, C. S. | TUSKEGEE INSTITUTE | NSG 8003 | Doreswamy, C. V. | 45 | 1038 |
| MSFC | Young, L. E. | TUSKEGEE INSTITUTE | NSG 8038 | Doreswamy, C. V. | 45 | 1039 |
| MSFC | Parnell, T. A. | UNIV ALA-HUNTSVILLE | NAS 8-24908 | Hiser, H. W. | 11 | 1041 |
| MSFC | Parnell, T. A. | UNIV ALA-HUNTSVILLE | NAS 8-24953 | Gregory, J. C. | 13 | 1042 |
| MSFC | Lacy, L. L. | UNIV ALA-HUNTSVILLE | NAS 8-27809 | Otto, G. H. | 47 | 1043 |
| MSFC | Hagyard, M. J. | UNIV ALA-HUNTSVILLE | NAS 8-28097 | Wu, S. T. | 13 | 1044 |
| MSFC | Swenson, G. R. | UNIV ALA-HUNTSVILLE | NAS 8-28248 | Hermann, R. | 42 | 1045 |
| MSFC | Adams, W. R. | UNIV ALA-HUNTSVILLE | NAS 8-28304 | Walter, H. U. | 19 | 1046 |
| MSFC | Urban, E. W. | UNIV ALA-HUNTSVILLE | NAS 8-29316 | Hendricks, J. B. | 99 | 1047 |
| MSFC | Swenson, G. R. | UNIV ALA-HUNTSVILLE | NAS 8-29543 | Wu, S. T. | 13 | 1048 |
| MSFC | Smith, R. E. | UNIV ALA-HUNTSVILLE | NAS 8-30247 | Hung, R. J. | 31 | 1049 |
| MSFC | Chappell, C. R. | UNIV ALA-HUNTSVILLE | NAS 8-30563 | Smalley, L. L. | 13 | 1050 |
| MSFC | Morton, R. R. | UNIV ALA-HUNTSVILLE | NAS 8-30772 | Rossing, L. M. | 51 | 1051 |
| MSFC | Zwiener, J. M. | UNIV ALA-HUNTSVILLE | NAS 8-30774 | Castle, J. G., Jr. | 47 | 1052 |
| MSFC | Gravette, M. C. | UNIV ALA-HUNTSVILLE | NAS 8-30885 | Schroer, B. J. | 39 | 1053 |
| MSFC | Morton, R. R. | UNIV ALA-HUNTSVILLE | NAS 8-31169 | Grohse, E. W. | 44 | 1054 |
| MSFC | Parnell, T. A. | UNIV ALA-HUNTSVILLE | NAS 8-31170 | Gregory, J. C. | 13 | 1055 |
| MSFC | West, G. S., Jr. | UNIV ALA-HUNTSVILLE | NAS 8-31171 | Hung, R. J. | 39 | 1056 |

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| MSFC | Detko, G. J. | UNIV ALA-HUNTSVILLE | NAS 8-31174 | Luttges, W. E. | 19 | 1057 |
| MSFC | Teuber, D. L. | UNIV ALA-HUNTSVILLE | NAS 8-31194 | Knezovich, F. M. | 13 | 1058 |
| MSFC | Bowden, D. R. | UNIV ALA-HUNTSVILLE | NAS 8-31293 | Christiansen, D. | 13 | 1059 |
| MSFC | Smith, R. E. | UNIV ALA-HUNTSVILLE | NAS 8-31321 | Hung, R. J. | 31 | 1060 |
| MSFC | Bensko, J. | UNIV ALA-HUNTSVILLE | NAS 8-31345 | Doyle, L. | 32 | 1061 |
| MSFC | Vaughan, O. H. | UNIV ALA-HUNTSVILLE | NAS 8-31729 | Hung, R. J. | 13 | 1062 |
| MSFC | Lacy, L. L. | UNIV ALA-HUNTSVILLE | NAS 8-31768 | Otto, G. H. | 46 | 1063 |
| MSFC | Fishman, G. J. | UNIV ALA-HUNTSVILLE | NAS 8-31895 | Gregory, J. C. | 13 | 1064 |
| MSFC | Emens, F. H. | UNIV ALA-TUSCALOOSA | NAS 8-20172 | Houts, R. C. | 45 | 1069 |
| MSFC | Randall, J. L. | UNIV ALA-TUSCALOOSA | NAS 8-25562 | Webb, W. E. | 31 | 1070 |
| MSFC | Bannister, T. C. | UNIV ALA-TUSCALOOSA | NAS 8-28098 | Miyagawa, I. | 13 | 1071 |
| MSFC | Morton, R. R. | UNIV ALA-TUSCALOOSA | NAS 8-29100 | April, G. C. | 49 | 1072 |
| MSFC | Schafer, C. F. | UNIV ALA-TUSCALOOSA | NAS 8-29494 | De Smet, D. J. | 13 | 1073 |
| MSFC | Bensko, J. | UNIV ALA-TUSCALOOSA | NAS 8-29936 | Hughes, T. H. | 32 | 1074 |
| MSFC | Bensko, J. | UNIV ALA-TUSCALOOSA | NAS 8-29937 | Stow, S. H. | 32 | 1075 |
| MSFC | Moore, W. W., Jr. | UNIV ALA-TUSCALOOSA | NAS 8-30479 | Liu, H. K. | 13 | 1076 |
| MSFC | Schutzenhofer, L. A. | UNIV ALA-TUSCALOOSA | NAS 8-30624 | Doughty, J. O. | 46 | 1077 |
| MSFC | Digesu, F. E. | UNIV ALA-TUSCALOOSA | NAS 8-30886 | Ainsworth, O. R. | 21 | 1078 |
| MSFC | Miller, E. R. | UNIV ALA-TUSCALOOSA | NAS 8-31343 | Fay, T. D. | 11 | 1079 |
| MSFC | Bensko, J. | UNIV ALA-TUSCALOOSA | NAS 8-31979 | Hughes, T. | 13 | 1080 |
| MSFC | Roberts, W. T. | UNIV ALASKA-FAIRBNKS | NAS 8-31801 | Davis, T. N. | 19 | 1087 |
| MSFC | Kurtz, R. L. | UNIV OF ARIZONA | NAS 8-28661 | Jacobs, S. F. | 13 | 1107 |
| MSFC | Allen, R. E. | UNIV OF ARIZONA | NAS 8-29566 | Bier, M. | 13 | 1108 |
| MSFC | Miller, E. R. | UNIV OF ARIZONA | NAS 8-31192 | Sonett, C. P. | 11 | 1109 |
| MSFC | Miller, E. R. | UNIV OF ARIZONA | NAS 8-31196 | Sonett, C. P. | 11 | 1110 |
| MSFC | Allen, R. E. | UNIV OF ARIZONA | NAS 8-31537 | Bier, M. | 47 | 1111 |
| MSFC | Harwell, R. J. | UNIV OF ARIZONA | NAS 8-31948 | Bartels, P. H. | 51 | 1112 |
| MSFC | Falls, L. W. | UNIV ARKANSAS-FAYETV | NAS 8-31550 | Carter, M. C. | 31 | 1175 |
| MSFC | Huffaker, R. M. | UNIV ARKANSAS-FAYETV | NAS 8-31771 | Skeith, R. W. | 31 | 1176 |
| MSFC | Ondrak, B. T. | UNIV CALIF-BERKELEY | NAS 8-29603 | Price, P. B. | 13 | 1448 |
| MSFC | Roberts, W. T. | UNIV CALIF-BERKELEY | NAS 8-31346 | Mozel, F. S. | 19 | 1449 |
| MSFC | Adams, W. R. | UNIV CALIF-L ANGELES | NAS 8-28310 | Yue, A. S. | 19 | 1542 |
| MSFC | Seltzer, S. M. | UNIV CALIF-L ANGELES | NAS 8-28358 | Likins, P. W. | 49 | 1543 |
| MSFC | Adams, W. R. | UNIV CALIF-L ANGELES | NAS 8-30579 | Yue, A. S. | 19 | 1544 |
| MSFC | Taylor, K. R. | UNIV CALIF-L ANGELES | NAS 8-31710 | Bunshah, R. F. | 19 | 1545 |
| MSFC | Jordan, W. E. | UNIV CALIF-SAN DIEGO | NAS 8-27974 | Peterson, L. E. | 11 | 1602 |
| MSFC | Fountain, W. F. | UNIV CALIF-SAN DIEGO | NAS 8-28015 | Hudson, H. S. | 11 | 1603 |
| MSFC | Chappell, C. R. | UNIV CALIF-SAN DIEGO | NAS 8-31145 | McIlwain, C. E. | 13 | 1604 |
| MSFC | Roberts, W. T. | UNIV CALIF-SAN DIEGO | NAS 8-31839 | Banks, P. M. | 13 | 1605 |
| MSFC | Bass, B. G. | UNIV COLORADO-BOLDR | NAS 8-31378 | Dulk, G. A. | 13 | 1769 |
| MSFC | Holland, W. B. | UNIV COLORADO-BOLDR | NAS 8-31619 | Feng, C. C. | 46 | 1770 |
| MSFC | Fichtl, G. H. | UNIV COLORADO-BOLDR | NAS 8-31958 | Toomre, J. | 39 | 1771 |
| MSFC | Camp, D. W. | UNIV OF DAYTON | NAS 8-31294 | Leurs, J. K. | 41 | 3150 |
| MSFC | Schell, J. T. | UNIV OF FLORIDA | NAS 8-20247 | Patterson, E. P. | 12 | 1917 |
| MSFC | Taylor, K. R. | UNIV OF FLORIDA | NSG 8031 | Goldberg, E. P. | 19 | 1934 |
| MSFC | Clingman, J. H. | UNIV OF GEORGIA | NAS 8-31565 | Burkhard, D. G. | 13 | 2013 |
| MSFC | Palupan, C. T. | UNIV OF KENTUCKY | NAS 8-31006 | Graves, D. H. | 39 | 2225 |
| MSFC | Gross, L. A. | UNIV OF LOUISVILLE | NAS 8-31233 | Childs, D. W. | 42 | 2233 |
| MSFC | Devries, L. L. | UNIV MICH-ANN ARBOR | NAS 8-30625 | Stedman, D. H. | 31 | 2569 |
| MSFC | Roberts, W. T. | UNIV MICH-ANN ARBOR | NAS 8-31397 | Nagy, A. F. | 19 | 2570 |
| MSFC | Roberts, W. T. | UNIV MICH-ANN ARBOR | NAS 8-31772 | Samir, U. | 31 | 2571 |
| MSFC | Shriver, E. L. | UNIV MICH-ANN ARBOR | NAS 8-31987 | Carignan, G. R. | 19 | 2572 |
| MSFC | Krome, H. O. | U MINN-MNPLS-ST PAUL | NAS 8-27977 | Waddington, C. J. | 11 | 2624 |
| MSFC | Roberts, W. T. | U MINN-MNPLS-ST PAUL | NAS 8-31510 | Winckler, J. R. | 13 | 2625 |
| MSFC | Smith, R. E. | UNIV MO-COLUMBIA | NAS 8-31150 | Plummer, P. L. | 31 | 2690 |
| MSFC | Paludan, C. T. | UNIV MO-COLUMBIA | NAS 8-31767 | Barr, P. J. | 39 | 2691 |
| MSFC | Smith, R. E. | UNIV MO-COLUMBIA | NAS 8-31849 | Dunipace, K. R. | 31 | 2692 |
| MSFC | Smith, R. E. | UNIV MO-ROLLA | NAS 8-31538 | Stampfer, J. F., Jr. | 13 | 2696 |

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| MSFC | Johnston, J. D. | UNIV NEBRASKA-LINCLN | NAS 8-31897 | Kersten, L. | 46 | 2724 |
| MSFC | Smith, R. E. | UNIV NEVADA-DRI | NAS 8-31470 | Squires, P. | 31 | 2728 |
| MSFC | Schrick, B. J. | UNIV NEVADA-DRI | NAS 8-31776 | Squires, P. | 31 | 2729 |
| MSFC | Smith, R. E. | UNIV OF NEVADA-RENO | NAS 8-31441 | Telford, J. W. | 19 | 2731 |
| MSFC | Smith, R. E. | UNIV OF NEVADA-RENO | NAS 8-31780 | Squires, P. | 31 | 2732 |
| MSFC | Parnell, T. A. | UNIV N CAR-CHPL HILL | NAS 8-26601 | Childs, C. B. | 13 | 3074 |
| MSFC | Turner, R. E. | UNIV OKLAHOMA-NORMAN | NAS 8-31333 | Inman, R. L. | 31 | 3173 |
| MSFC | Camp, D. W. | UNIV OKLAHOMA-NORMAN | NAS 8-31377 | Inman, R. L. | 31 | 3174 |
| MSFC | Allen, R. E. | UNIV ORGEON-HLTH CTR | NAS 8-30887 | Knox, R. J. | 51 | 3192 |
| MSFC | Harwell, R. J. | UNIV ORGEON-HLTH CTR | NAS 8-31386 | Brooks, D. E. | 59 | 3193 |
| MSFC | Ives, R. E. | UNIV ORGEON-HLTH CTR | NAS 8-31899 | Brooks, D. E. | 51 | 3194 |
| MSFC | Taylor, K. R. | UNIV OF PENNSYLVANIA | NAS 8-31702 | Zemel, J. N. | 19 | 3265 |
| MSFC | Taylor, K. R. | UNIV OF PITTSBURGH | NAS 8-31703 | Cassidy, W. A. | 19 | 3272 |
| MSFC | Parnell, T. A. | UNIV SAN FRANCISCO | NAS 8-26758 | Benton, E. V. | 13 | 1665 |
| MSFC | Seltzer, S. M. | UNIV OF SANTA CLARA | NAS 8-27799 | Siljak, D. D. | 49 | 1674 |
| MSFC | Lowrey, D. O. | UNIV SO CAROLINA-COL | NAS 8-28660 | Fellers, R. G. | 45 | 3309 |
| MSFC | Caruso, S. V. | UNIV OF SO FLORIDA | NAS 8-31172 | Sergeant, J. | 45 | 1948 |
| MSFC | Ruff, R. C. | UNIV OF SOUTHERN CAL | NAS 8-29847 | Wilcox, W. R. | 13 | 1707 |
| MSFC | Hertsgaard, H. B. | UNIV TENNESSEE-KNOXV | NAS 8-27296 | Kennedy, E. J. | 42 | 3330 |
| MSFC | Huggins, C. T. | UNIV TENNESSEE-KNOXV | NAS 8-29271 | Gonzalez, R. C. | 45 | 3331 |
| MSFC | Fichtl, G. H. | UNIV TENNESSEE-KNOXV | NAS 8-29584 | Frost, W. | 46 | 3332 |
| MSFC | Ellsworth, D. J. | UNIV TENNESSEE-KNOXV | NAS 8-29632 | Hung, J. C. | 46 | 3333 |
| MSFC | Escue, W. T. | UNIV TENNESSEE-KNOXV | NAS 8-31143 | Rehder, J. B. | 39 | 3334 |
| MSFC | Hill, K. | UNIV TENNESSEE-KNOXV | NAS 8-31718 | Frost, W. | 31 | 3335 |
| MSFC | Paludan, C. T. | UNIV TENNESSEE-KNOXV | NAS 8-31980 | Shahroki, F. | 39 | 3336 |
| MSFC | Fichtl, G. H. | UNIV TENNESSEE-KNOXV | NAS 8-32118 | Frost, W. | 31 | 3337 |
| MSFC | Williams, J. R. | UNIV TEXAS-AUSTIN | NAS 8-31459 | Henize, K. | 11 | 3483 |
| MSFC | Key, J. E. | UNIV TEXAS-AUSTIN | NAS 8-31566 | Dunham, R. B. | 21 | 3484 |
| MSFC | Chappell, C. R. | UNIV TEXAS-DALLAS | NAS 8-31775 | Hanson, W. B. | 19 | 3525 |
| MSFC | Hall, A. J., Jr. | UNIV OF TOLEDO | NAS 8-31681 | Delsemme, A. H. | 13 | 3152 |
| MSFC | Patterson, W. J. | UNIV OF UTAH | NAS 8-30253 | Andrade, J. D. | 12 | 3561 |
| MSFC | Williams, J. R. | UNIV WISC-MADISON | NAS 8-28733 | Heine, R. W. | 47 | 3785 |
| MSFC | Odell, C. R. | UNIV WISC-MADISON | NAS 8-29387 | Code, A. D. | 11 | 3786 |
| MSFC | Schrick, B. J. | UNIV OF WYOMING | NAS 8-32067 | Vali, G. | 31 | 3811 |
| MSFC | Nichols, R. L. | VANDERBILT UNIVERSITY | NAS 8-30656 | Kinser, D. L. | 13 | 3352 |
| MSFC | Caruso, S. V. | VANDERBILT UNIVERSITY | NAS 8-30883 | Kinser, D. L. | 47 | 3353 |
| MSFC | Yates, I. C., Jr. | WASHINGTON ST UNIV | NAS 8-29725 | Johnson, A. A. | 47 | 3764 |
| MSFC | Krome, H. O. | WASHINGTON UNIVERSITY | NAS 8-27976 | Israel, M. H. | 11 | 2708 |
| MSFC | Allen, R. E. | WAYNE STATE UNIV | NAS 8-29823 | Brown, R. K. | 47 | 2607 |
| NSTL | Wolverton, B. C. | ALCORN STATE UNIV | NSG 8005 | Naqvi, S. M. | 39 | 2651 |
| NSTL | Wolverton, B. C. | ALCORN STATE UNIV | NSG 8036 | Latif, A. | 51 | 2652 |
| NSTL | Wolverton, B. C. | JACKSON STATE UNIV | NSG 8026 | Shore, F. | 39 | 2657 |
| NSTL | Joyce, A. T. | JACKSON STATE UNIV | NSG 9016 | Nelson, F. R. | 39 | 2658 |
| NSTL | Rusoff, L. L. | LA STATE U-BAT ROUGE | NAS13-38 | Wolverton, V. C. | 59 | 2245 |
| NSTL | Montgomery, W. D. | MISSISSIPPI STATE U | NAS13-10 | Forbes, R. E. | 49 | 2665 |
| NSTL | Unavailable | MISSISSIPPI STATE U | NAS13-21 | Unavailable | 59 | 2666 |
| NSTL | Stocks, P. | UNIV SO MISSISSIPPI | NAS13-23 | Wolverton, V. C. | 51 | 2680 |
| WFC | Rossi, L. C. | CITY COLLEGE OF N Y | NAS 6-2439 | Pierson, W. J. | 32 | 2848 |
| WFC | Stanley, H. R. | COLUMBIA UNIVERSITY | NAS 6-2455 | Kuo, J. T. | 33 | 2870 |
| WFC | Stanley, H. R. | COLUMBIA UNIVERSITY | NAS 6-2519 | Talwani, M. | 32 | 2871 |
| WFC | Holland, A. C. | DC TEACHERS COLLEGE | NGR 09-053-002 | Curtis, W. C. | 19 | 1844 |
| WFC | Holland, A. C. | DC TEACHERS COLLEGE | NSG 6003 | Curtis, W. C. | 19 | 1846 |
| WFC | Holland, A. C. | DREXEL UNIVERSITY | NSG 6007 | Brandy, A. R. | 31 | 3209 |
| WFC | Milliner, J. B. | ESTRN SHORE CMTY COL | NAS 6-2707 | Unavailable | 99 | 3591 |
| WFC | Kim, H. H. | HAMPTON INSTITUTE | NGR 47-020-006 | Trehan, A. K. | 19 | 3595 |
| WFC | Stanley, H. R. | JOHNS HOPKINS UNIV | NAS 6-2706 | Phillips, O. M. | 33 | 2280 |
| WFC | West, W. W. | NEW MEX ST U-LAS CR | NAS 6-2686 | Gammill, B. G. | 46 | 2804 |
| WFC | Stanley, H. R. | NO CAROLINA STATE U | NAS 6-2617 | Hiser, H. W. | 33 | 3057 |

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| WFC | Stanley, H. R. | OHIO STATE UNIV | NAS 6-2484 | Rapp, R. H. | 32 | 3115 |
| WFC | Holland, A. C. | OLD DOMINION UNIV | NSG 6002 | Bandy, A. R. | 31 | 3661 |
| WFC | Duke, J. R. | PENN STATE U-UNIV PK | NAS 6-2602 | Hale, L. C. | 19 | 3231 |
| WFC | Duke, J. R. | PENN STATE U-UNIV PK | NAS 6-2726 | Olivero, J. | 31 | 3232 |
| WFC | Ballance, C. W., Jr. | PENN STATE U-UNIV PK | NSG 6004 | Hale, L. C. | 19 | 3258 |
| WFC | Maurer, H. E. | PURDUE UNIVERSITY | NAS 6-2613 | Phillips, T. L. | 39 | 2117 |
| WFC | Maurer, H. E. | PURDUE UNIVERSITY | NAS 6-2695 | Phillips, T. L. | 39 | 2118 |
| WFC | Ballance, C. W., Jr. | RICE UNIVERSITY | NAS 6-1667 | Anderson, H. R., Jr. | 11 | 3384 |
| WFC | Stanley, H. R. | UNIV CALIF-L ANGELES | NAS 6-2463 | Kaula, W. M. | 33 | 1540 |
| WFC | Stanley, H. R. | UNIV CALIF-L ANGELES | NAS 6-2703 | Mintz, Y. | 33 | 1541 |
| WFC | Stanley, H. R. | UNIV CALIF-SAN DIEGO | NAS 6-2506 | Hendershott, M. | 11 | 1601 |
| WFC | Duke, J. R. | UNIV OF DAYTON | NAS 6-2456 | Chupp, E. L. | 31 | 3149 |
| WFC | Ballance, C. W., Jr. | UNIV HOUSTON-HOUSTON | NSG 6008 | Sheldon, W. R. | 19 | 3472 |
| WFC | Ballance, C. W., Jr. | UNIV ILLINOIS-URBANA | NGR 14-005-181 | Bowhill, S. A. | 19 | 2080 |
| WFC | Alfonsi, P. J. | UNIV MARYLAND-COL PK | NSG 6001 | Harmon, D. M. | 39 | 2361 |
| WFC | Alfonsi, P. J. | UNIV MARYLAND-COL PK | NSG 6010 | Harmon, D. M. | 72 | 2362 |
| WFC | Floyd, J. C. | UNIV MD-EASTRN SHORE | NAS 6-2595 | Unavailable | 99 | 2366 |
| WFC | Raine, A. W. | UNIV MD-EASTRN SHORE | NGR 21-119-002 | Nagarajan, N. | 41 | 2368 |
| WFC | Kim, H. H. | UNIV MD-EASTRN SHORE | NGR 21-119-003 | Singh, G. | 13 | 2369 |
| WFC | Oberholtzer, J. D. | UNIV MD-EASTRN SHORE | NSG 6006 | Wutoh, J. G. | 99 | 2370 |
| WFC | Ballance, C. W., Jr. | U MINN-MNPLS-ST PAUL | NSG 6005 | Arnoldy, R. J. | 19 | 2643 |
| WFC | Ballance, C. W., Jr. | U MINN-MNPLS-ST PAUL | NSG 6009 | Nier, A. O. | 19 | 2644 |
| WFC | Ballance, C. W., Jr. | UNIV OF PITTSBURGH | NSG 6011 | Zipf, E. C., Jr. | 19 | 3290 |
| WFC | Stanley, H. R. | UNIV TEXAS-AUSTIN | NAS 6-2454 | Tapley, B. D. | 32 | 3482 |
| WFC | Duke, J. R. | UNIV OF UTAH | NAS 6-2498 | Kao, S. K. | 31 | 3559 |
| WFC | Duke, J. R. | UNIV OF UTAH | NAS 6-2627 | Staffanson, F. L. | 31 | 3560 |
| WFC | Scott, J. H. | VIRGINIA POLY INST | NAS 6-2388 | Pettry, D. E. | 39 | 3695 |
| WFC | Carr, R. E. | VIRGINIA POLY INST | NGL 47-004-067 | Tieleman, H. W. | 31 | 3697 |
| HQ-AD | Wright, M. D. | GEORGE WASHINGTON U | NSG 7145 | Logsdon, J. M. | 75 | 1874 |
| HQ-AD | Wright, M. D. | UNIV HOUSTON-HOUSTON | NASW 2691 | Unavailable | 73 | 3458 |
| HQ-BX | Weir, J. F. | UNIV OF HAWAII-MANOA | NASW 2742 | Jefferies, J. T. | 11 | 2021 |
| HQ-BX | Weir, J. F. | UNIV OF HAWAII-MANOA | NASW 2801 | Jefferies, J. T. | 11 | 2022 |
| HQ-EC | Freibaum, J. | MASS INST OF TECH | NASW 2787 | Unavailable | 45 | 2442 |
| HQ-EE | Ernst, H. E. | CITY COLLEGE OF N Y | NSG 7144 | Schilling, D. L. | 49 | 2857 |
| HQ-EK | Schweickart, R. L. | UNIV OF CONNECTICUT | W-14061 | Baldwin, R. C., Jr. | 39 | 1822 |
| HQ-ER | Morrison, J. R. | COLORADO SCH OF MINE | NGL 06-001-015 | Lee, K. | 39 | 1720 |
| HQ-ES | Murphy, J. P. | OHIO STATE UNIV | NASW 2435 | Mueller, I. I. | 32 | 3117 |
| HQ-ES | Murphy, J. P. | OHIO STATE UNIV | NGL 36-008-093 | Mueller, I. I. | 19 | 3119 |
| HQ-ES | Murphy, J. P. | OHIO STATE UNIV | NGR 36-008-204 | Mueller, I. I. | 32 | 3123 |
| HQ-ES | Murphy, J. P. | UNIV CALIF-L ANGELES | NSG 7002 | Kaula, W. M. | 32 | 1585 |
| HQ-FE | Rich, W. B. | CAL STATE U-CHICO | NASW 2835 | Unavailable | 99 | 1250 |
| HQ-FE | Collin, E. E. | OKLAHOMA STATE UNIV | NASW 1964 | Wiggins, K. E. | 99 | 3167 |
| HQ-FE | Tuttle, F. B. | UNIV OF UTAH | NASW 2648 | Ridd, M. K. | 39 | 3563 |
| HQ-K | Gray, E. Z. | NEW YORK UNIVERSITY | NSG 7169 | Morgenstern, O. | 72 | 2958 |
| HQ-KT | Holley, H. L. | INDIANA U-BLOOMINGTN | NASW 2467 | Shriner, H. | 99 | 2102 |
| HQ-KT | Holley, H. L. | INDIANA U-BLOOMINGTN | NASW 2714 | Shriner, H. | 99 | 2103 |
| HQ-KT | Bivins, R. G. | INDIANA U-BLOOMINGTN | NASW 2845 | Shriner, R. D. | 99 | 2104 |
| HQ-KT | Holley, H. L. | SOUTHEASTN OKLA ST U | NASW 2512 | Gold, H. | 99 | 3168 |
| HQ-KT | Holley, H. L. | SOUTHEASTN OKLA ST U | NASW 2629 | Unavailable | 99 | 3169 |
| HQ-KT | Bivins, R. G. | SOUTHEASTN OKLA ST U | NASW 2881 | Gold, C. H. | 99 | 3170 |
| HQ-KT | Holley, H. L. | UNIV OF CONNECTICUT | NASW 2516 | Wilde, D. U. | 99 | 1818 |
| HQ-KT | Ault, L. A. | UNIV OF DENVER | NASW 2607 | Unavailable | 75 | 1806 |
| HQ-KT | Ault, L. A. | UNIV OF DENVER | NASW 2766 | Freeman, J. E. | 99 | 1807 |
| HQ-KT | Ault, L. A. | UNIV OF DENVER | NASW 2892 | Johnson, F. D. | 99 | 1808 |
| HQ-KT | Harrison, J. O. | UNIV OF GEORGIA | NASW 2658 | Unavailable | 99 | 2014 |
| HQ-KT | Harrison, J. O. | UNIV OF GEORGIA | NASW 2820 | Carmon, J. L. | 99 | 2015 |
| HQ-KT | Holley, H. L. | UNIV OF NEW MEXICO | NASW 2399 | Shinnick, W. A. | 99 | 2817 |
| HQ-KT | Bivins, R. G. | UNIV OF NEW MEXICO | NASW 2633 | Unavailable | 99 | 2818 |

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| HQ-KT | Bivins, R. G. | UNIV OF NEW MEXICO | NASW 2805 | Unavailable | 99 | 2819 |
| HQ-KT | Holley, H. L. | UNIV OF PITTSBURGH | NASW 2425 | Holley, E. | 99 | 3274 |
| HQ-KT | Holley, H. L. | UNIV OF PITTSBURGH | NASW 2674 | Unavailable | 99 | 3275 |
| HQ-KT | Bivins, R. G. | UNIV OF PITTSBURGH | NASW 2838 | Unavailable | 99 | 3276 |
| HQ-KT | Holley, H. L. | UNIV OF SOUTHERN CAL | NASW 2771 | Unavailable | 99 | 1709 |
| HQ-KT | Zimmerman, R. R. | UNIV WISC-MADISON | NASW 2716 | Unavailable | 59 | 3787 |
| HQ-KT | O'handley, D. A. | UNIV WISC-MADISON | NASW 2819 | Huston, N. | 59 | 3788 |
| HQ-P | Pohly, J. G. | ALABAMA A&M UNIV | NGR 01-001-003 | Lee, C. O. | 59 | 1001 |
| HQ-P | Carter, C. H. | AUBURN UNIV-AUBURN | NGT 01-003-044 | Vachon, R. I. | 49 | 1030 |
| HQ-P | Carter, C. H. | AUBURN UNIV-AUBURN | NGT 01-003-045 | O'Brien, J. F. | 49 | 1031 |
| HQ-P | Pohly, J. G. | BENNETT COLLEGE-NC | NGT 34-017-001 | Sayles, J. H. | 99 | 3044 |
| HQ-P | Pohly, J. G. | CAL STATE U-L ANGLES | NSG 7229 | Maniv, R. | 46 | 1265 |
| HQ-P | Carter, C. H. | CASE WESTERN RESERVE | NGT 36-027-011 | Prahl, J. M. | 49 | 3088 |
| HQ-P | Morris, J. D. | COLUMBIA UNIVERSITY | NGR 33-008-168 | Ginzberg, E. | 72 | 2877 |
| HQ-P | Vitale, J. A. | CORNELL UNIVERSITY | NGL 33-010-171 | Liang, T. | 39 | 2910 |
| HQ-P | Pohly, J. G. | FEDERAL CITY COLLEGE | NGR 09-050-010 | McDowell, H. | 11 | 1849 |
| HQ-P | Pohly, J. G. | GOUCHER COLLEGE | NGT 21-123-001 | Billet, J. | 99 | 2277 |
| HQ-P | Carter, C. H. | HARVARD UNIVERSITY | NSG 7176 | Field, G. B. | 11 | 2412 |
| HQ-P | Pohly, J. G. | HOWARD UNIVERSITY | NGL 09-011-046 | Ferguson, G. A. | 39 | 1880 |
| HQ-P | Pohly, J. G. | HOWARD UNIVERSITY | NGT 09-011-051 | Deloatch, E. M. | 59 | 1884 |
| HQ-P | Pohly, J. G. | HOWARD UNIVERSITY | NGT 09-011-058 | Cox, E. L. | 49 | 1885 |
| HQ-P | Pohly, J. G. | LINCOLN UNIV-PA | NGT 39-108-750 | Williams, W., Jr. | 49 | 3225 |
| HQ-P | Redding, E. R. | LA STATE U-BAT ROUGE | NGL 19-001-097 | Whitehurst, C. A. | 39 | 2246 |
| HQ-P | Vitale, J. A. | LA STATE U-BAT ROUGE | NGL 19-001-105 | Whitehurst, C. A. | 39 | 2247 |
| HQ-P | Carter, C. H. | MASS INST OF TECH | NGL 22-009-019 | Harrington, J. V. | 99 | 2447 |
| HQ-P | Carter, C. H. | MASS INST OF TECH | NGL 22-009-638 | McCarthy, J. F., Jr. | 99 | 2455 |
| HQ-P | Vitale, J. A. | MICHIGAN STATE UNIV | NGL 23-004-083 | Boylan, M. G. | 39 | 2544 |
| HQ-P | Redding, E. R. | MISSISSIPPI STATE U | NGL 25-001-040 | Brown, L. R. | 39 | 2668 |
| HQ-P | Vitale, J. A. | MISSISSIPPI STATE U | NGL 25-001-054 | Miller, W. F. | 39 | 2669 |
| HQ-P | Pohly, J. G. | MOREHOUSE COLLEGE | NGT 11-008-004 | Gayles, J. N. | 99 | 2003 |
| HQ-P | Pohly, J. G. | NM HIGHLANDS UNIV | NGT 32-010-001 | Zenick, H. | 99 | 2794 |
| HQ-P | Pohly, J. G. | NEW MEX ST U-LAS CR | NGT 32-003-750 | Zimmerman, R. M. | 49 | 2811 |
| HQ-P | Pohly, J. G. | NO CAR A&T STATE U | NGT 34-012-750 | Chandra, S. | 49 | 3053 |
| HQ-P | Morris, J. D. | NORTHWESTERN UNIV | NGL 14-007-058 | Radnor, M. | 79 | 2041 |
| HQ-P | Carter, C. H. | OHIO STATE UNIV | NGT 36-008-007 | Ellingson, H. V. | 52 | 3126 |
| HQ-P | Vitale, J. A. | OLD DOMINION UNIV | NGL 47-003-067 | Kindle, E. C. | 31 | 3611 |
| HQ-P | Carter, C. H. | OLD DOMINION UNIV | NGT 47-003-028 | Goglia, G. L. | 49 | 3618 |
| HQ-P | Carter, C. H. | OLD DOMINION UNIV | NGT 47-003-029 | Goglia, G. L. | 49 | 3619 |
| HQ-P | Vitale, J. A. | OREGON STATE UNIV | NGL 38-002-053 | Schrumpf, B. J. | 39 | 3184 |
| HQ-P | Carter, C. H. | PENN STATE U-UNIV PK | NGT 39-009-141 | Reethof, G. | 99 | 3248 |
| HQ-P | Pohly, J. G. | PRAIRIE VIEW A&M U | NGT 44-033-750 | Greaux, A. E. | 49 | 3379 |
| HQ-P | Vitale, J. A. | PURDUE UNIVERSITY | NGL 15-005-186 | Weismiller, R. A. | 39 | 2125 |
| HQ-P | Vitale, J. A. | SO DAKOTA STATE UNIV | NGL 42-003-007 | Myers, V. I. | 39 | 3316 |
| HQ-P | Pohly, J. G. | SOUTHEASTN OKLA ST U | NGT 37-004-010 | Robinson, J. L. | 99 | 3171 |
| HQ-P | Pohly, J. G. | SO UNIV-BATON ROUGE | NGT 19-005-750 | Burrell, M. Q. | 49 | 2252 |
| HQ-P | Pohly, J. G. | SPELMAN COLLEGE | NGT 11-013-001 | McBay, S. M. | 99 | 2012 |
| HQ-P | Carter, C. H. | STANFORD UNIVERSITY | NGT 05-020-409 | Adams, J. L. | 49 | 1415 |
| HQ-P | Carter, C. H. | STANFORD UNIVERSITY | NGT 05-020-412 | Bershader, D. | 49 | 1416 |
| HQ-P | Pohly, J. G. | TENNESSEE STATE UNIV | NGT 43-014-750 | Clark, Y. Y. | 49 | 3322 |
| HQ-P | Pohly, J. G. | TEXAS A&I UNIVERSITY | NGT 44-073-750 | Franke, E. A. | 49 | 3403 |
| HQ-P | Vitale, J. A. | TEXAS A&M UNIVERSITY | NGL 44-001-001 | Rouse, J. W., Jr. | 39 | 3433 |
| HQ-P | Pohly, J. G. | TUSKEGEE INSTITUTE | NGT 01-005-750 | Dybczak, Z. W. | 49 | 1037 |
| HQ-P | Carter, C. H. | UNIV ALA-HUNTSVILLE | NGL 01-008-001 | Rush, J. E. | 99 | 1065 |
| HQ-P | Carter, C. H. | UNIV ALA-HUNTSVILLE | NGT 01-008-021 | Head, R. R. | 49 | 1067 |
| HQ-P | Carter, C. H. | UNIV ALA-TUSCALOOSA | NGT 01-002-080 | Barfield, B. F. | 49 | 1081 |
| HQ-P | Vitale, J. A. | UNIV ALASKA-FAIRBNKS | NGL 02-001-092 | Miller, J. M. | 39 | 1089 |
| HQ-P | Vitale, J. A. | UNIV OF ARIZONA | NGL 03-002-313 | Johnson, J. D. | 39 | 1136 |
| HQ-P | Vitale, J. A. | UNIV CALIF-BERKELEY | NGL 05-003-404 | Colewell, R. N. | 39 | 1471 |

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| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| HQ-P | Carter, C. H. | UNIV CALIF-BERKELEY | NGL 05-003-497 | Anderson, K. A. | 99 | 1474 |
| HQ-P | Vitale, J. A. | UNIV CALIF-BERKELEY | NSG 7220 | Colwell, R. N. | 39 | 1510 |
| HQ-P | Redding, E. R. | UNIV CALIF-L ANGELES | NGL 05-007-003 | Libby, W. F. | 99 | 1554 |
| HQ-P | Carter, C. H. | UNIV OF CHICAGO | NGL 14-001-258 | Simpson, J. A. | 99 | 2062 |
| HQ-P | Vitale, J. A. | UNIV COLORADO-BOLDR | NGL 06-003-200 | Ives, J. D. | 39 | 1776 |
| HQ-P | Vitale, J. A. | UNIV OF FLORIDA | NSG 7236 | Brooks, H. K. | 39 | 1933 |
| HQ-P | Vitale, J. A. | UNIV OF KANSAS | NGL 17-004-024 | Barr, B. G. | 39 | 2194 |
| HQ-P | Carter, C. H. | UNIV MARYLAND-COL PK | NGT 21-002-254 | Emad, F. P. | 49 | 2342 |
| HQ-P | Vitale, J. A. | U MINN-MNPLS-ST PAUL | NGL 24-005-263 | Shepherd, W. G. | 39 | 2631 |
| HQ-P | Carter, C. H. | U MINN-MNPLS-ST PAUL | NGT 24-005-078 | Anderson, G. W. | 99 | 2638 |
| HQ-P | Vitale, J. A. | UNIV NEBRASKA-LINCLN | NGL 28-004-020 | Carlson, M. P. | 39 | 2725 |
| HQ-P | Morris, J. D. | UNIV OF NEW MEXICO | NGL 32-004-042 | Rosenthal, A. H. | 75 | 2830 |
| HQ-P | Pohly, J. G. | UNIV OF NEW MEXICO | NGT 32-004-750 | Theye, L. A. | 49 | 2837 |
| HQ-P | Pohly, J. G. | UNIV OKLAHOMA-NORMAN | NGT 37-003-760 | Thomas, G. | 49 | 3175 |
| HQ-P | Vitale, J. A. | UNIV SO MISSISSIPPI | NGL 25-005-007 | Pinson, J. W. | 39 | 2681 |
| HQ-P | Carter, C. H. | UNIV TEXAS-DALLAS | NGL 44-004-130 | Johnson, F. S. | 99 | 3530 |
| HQ-P | Pohly, J. G. | UNIV TEXAS-EL PASO | NGT 44-085-750 | Guard, R. W. | 49 | 3543 |
| HQ-P | Vitale, J. A. | U TEX PUB HLTH-HUS | NGL 44-084-003 | Rush, M. | 59 | 3549 |
| HQ-P | Vitale, J. A. | UNIV OF UTAH | NSG 7226 | Ridd, M. K. | 39 | 3571 |
| HQ-P | Vitale, J. A. | UNIV WISC-MADISON | NGL 50-002-127 | Clapp, J. L. | 39 | 3791 |
| HQ-P | Redding, E. R. | WASHINGTON UNIVERSTY | NGL 26-008-054 | Morgan, R. P. | 99 | 2709 |
| HQ-MT | Huff, V. N. | HOWARD UNIVERSITY | NGR 09-011-053 | Bainum, P. M. | 46 | 1881 |
| HQ-MT | Hall, H. | MASS INST OF TECH | NGR 22-009-735 | Chapman, P. K. | 13 | 2477 |
| HQ-MT | Cramblitt, D. | PENN STATE U-UNIV PK | NSG 7078 | Kaplan, M. | 42 | 3259 |
| HQ-MV | Goozh, P. E. | UNIV OF ROME | NASW 1761 | Unavailable | 49 | 3823 |
| HQ-Q | Keller, S. W. | NORTHWESTERN UNIV | NGR 14-007-136 | Radnor, M. | 99 | 2046 |
| HQ-QG | Arnoldi, L. B. | BOSTON UNIVERSITY | NSG 7063 | Hershberg, P. I. | 52 | 2377 |
| HQ-RE | Pontious, C. E. | CALIF INST OF TECH | NGR 05-002-340 | Ingargiola, G. | 49 | 1230 |
| HQ-RE | Alsberg, H. | MASS INST OF TECH | NGL 22-009-013 | Kennedy, R. S. | 45 | 2444 |
| HQ-RE | Gevarter, W. B. | MASS INST OF TECH | NSG 7227 | Winston, P. H. | 49 | 2526 |
| HQ-RE | Pontious, C. E. | RENSSELAER POLY-NY | NSG 7184 | Frederick, D. K. | 19 | 2986 |
| HQ-RE | Pontious, C. E. | STANFORD UNIVERSITY | NASW 2916 | McCarthy, J. | 45 | 1349 |
| HQ-RE | Pontious, C. E. | STANFORD UNIVERSITY | NGL 05-020-103 | Harris, S. E. | 45 | 1383 |
| HQ-RE | Pontious, C. E. | UNIV MARYLAND-COL PK | NGR 21-002-270 | Minker, J. | 21 | 2329 |
| HQ-RM | Sanchez, E. L. | PRINCETON UNIVERSITY | NSG 7131 | Dowell, E. H. | 99 | 2790 |
| HQ-RP | Lazar, J. | PRINCETON UNIVERSITY | NGL 31-001-005 | Jahn, R. G. | 42 | 2762 |
| HQ-RP | Wasel, R. A. | UNIV OF UTAH | NGL 45-003-037 | Devires, K. L. | 46 | 3566 |
| HQ-RR | Thom, K. | GEORGIA INST OF TECH | NSG 7067 | Williams, R. J. | 13 | 1997 |
| HQ-RR | Thom, K. | ILL INST OF TECH | NSG 7039 | Weinstein, H. | 13 | 2037 |
| HQ-RR | Thom, K. | NO CAROLINA STATE U | NGL 34-002-017 | Bennett, W. H. | 13 | 3059 |
| HQ-RR | Thom, K. | PRINCETON UNIVERSITY | NGR 31-001-328 | Layton, J. P. | 13 | 2777 |
| HQ-RR | Thom, K. | STANFORD UNIVERSITY | NSG 7110 | Pantell, R. H. | 13 | 1440 |
| HQ-RR | Thom, K. | UNIV OF FLORIDA | NGL 10-005-089 | Schneider, R. T. | 13 | 1923 |
| HQ-RR | Thom, K. | UNIV MARYLAND-COL PK | NGR 21-002-408 | Tidman, D. A. | 21 | 2339 |
| HQ-RR | Schwenk, F. C. | UNIV MARYLAND-COL PK | NSG 7196 | Weber, J. | 13 | 2365 |
| HQ-RR | Thom, K. | UNIV OF WASHINGTON | NGL 48-002-044 | Hertzberg, A. | 13 | 3746 |
| HQ-RW | Gangler, J. J. | MASS INST OF TECH | W-13995 | | 47 | 2527 |
| HQ-RW | Weinberg, I. | STANFORD UNIVERSITY | NGL 05-020-242 | Little, W. A. | 13 | 1386 |
| HQ-RW | Gangler, J. J. | TULANE UNIVERSITY | NGL 19-002-027 | Hermann, A. M. | 13 | 2261 |
| HQ-RX | Rollins, R. H. | W VA COL GRAD STUDY | NSG 7089 | Cobb, W. E. | 75 | 3766 |
| HQ-NS | Thom, K. | CITY COLLEGE OF N Y | NGL 33-013-034 | Tchen, C. M. | 13 | 2851 |
| HQ-NS | Schwenk, F. C. | UNIV OF ARIZONA | NGL 03-002-006 | Schultz, D. G. | 45 | 1129 |
| HQ-SB | Larson, C. A. | BOSTON UNIVERSITY | NGR 22-004-018 | Fulton, G. P. | 59 | 2373 |
| HQ-SB | Young, R. S. | BOSTON UNIVERSITY | NGR 22-004-025 | Margulis, L. | 32 | 2374 |
| HQ-SB | Young, R. S. | CALIF INST OF TECH | NGR 05-002-121 | Horowitz, N. H. | 51 | 1216 |
| HQ-SB | Young, R. S. | CALIF INST OF TECH | NGR 05-002-310 | Bonner, J. | 32 | 1227 |
| HQ-SB | Young, R. S. | CAL STATE U-FULLERTN | NGR 05-071-008 | Wegner, P. A. | 12 | 1257 |
| HQ-SB | Saunders, J. F. | CATHOLIC UNIVERSITY | NGR 09-005-022 | Decicco, B. T. | 51 | 1836 |

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| HQ-SB | Halstead, T. W. | CLARKSON COL OF TECH | NSG 7170 | McNulty, P. J. | 59 | 2862 |
| HQ-SB | Jones, W. L. | COLLEGE OF WM & MARY | NSG 7073 | Aceto, H., Jr. | 59 | 3590 |
| HQ-SB | Young, R. S. | CORNELL UNIVERSITY | NGR 33-010-101 | Sagan, C. E. | 12 | 2913 |
| HQ-SB | Young, R. S. | CORNELL UNIVERSITY | NSG 7235 | MacDonald, R. E. | 51 | 2936 |
| HQ-SB | Young, R. S. | FLORIDA STATE UNIV | NGR 10-004-041 | Larock, P. A. | 51 | 1908 |
| HQ-SB | Hall, L. B. | GEORGE WASHINGTON U | NASW 2768 | Unavailable | 59 | 1856 |
| HQ-SB | Hall, L. B. | GEORGE WASHINGTON U | NASW 2890 | Unavailable | 75 | 1857 |
| HQ-SB | Young, R. S. | GEORGIA INST OF TECH | NSG 7069 | Hubbard, J. S. | 51 | 1998 |
| HQ-SB | Hall, L. B. | HARDIN-SIMMONS UNIV | NGR 44-095-001 | Foster, T. L. | 51 | 3373 |
| HQ-SB | Young, R. S. | HARVARD UNIVERSITY | NGL 22-007-069 | Barghoorn, E. S. | 32 | 2392 |
| HQ-SB | Vinograd, S. P. | INDIANA U-BLOOMINGTN | NGL 15-003-117 | Maickel, R. P. | 52 | 2108 |
| HQ-SB | Young, R. S. | INDIANA U-BLOOMINGTN | NGR 15-003-118 | Hayes, J. M. | 32 | 2111 |
| HQ-SB | Young, R. S. | MASS INST OF TECH | NGR 22-009-005 | Biemann, K. | 51 | 2457 |
| HQ-SB | Young, R. S. | MASS INST OF TECH | NGR 22-009-277 | Rich, A. | 12 | 2459 |
| HQ-SB | Hall, L. B. | NO DAKOTA STATE UNIV | NGR 35-001-012 | Hill, T. W. | 12 | 3076 |
| HQ-SB | Young, R. S. | PENN STATE U-UNIV PK | NGR 39-009-180 | Casida, L. E., Jr. | 51 | 3244 |
| HQ-SB | Young, R. S. | POLY INST OF NY | NGR 33-006-070 | Eirich, F. R. | 12 | 2962 |
| HQ-SB | Young, R. S. | RENSSELAER POLY-NY | NGR 33-018-148 | Ferris, J. P. | 12 | 2978 |
| HQ-SB | Young, R. S. | RENSSELAER POLY-NY | NSG 7065 | Wedler, F. C. | 51 | 2985 |
| HQ-SB | Young, R. S. | SAN FRAN STATE UNIV | NSG 7234 | Kenyon, D. H. | 12 | 1286 |
| HQ-SB | Young, R. S. | SO ILL UNIV-CARBONDL | NGR 14-008-026 | Yopp, J. H. | 51 | 2050 |
| HQ-SB | Young, R. S. | STANFORD UNIVERSITY | NGL 05-020-582 | Bonner, W. A. | 59 | 1392 |
| HQ-SB | Young, R. S. | STANFORD UNIVERSITY | NGR 05-020-004 | Lederberg, J. | 51 | 1394 |
| HQ-SB | Young, R. S. | STATE UNIV NY-BUFFAL | NGR 33-015-002 | Danielli, J. F. | 12 | 3001 |
| HQ-SB | Young, R. S. | STATE U NY-STONY BRK | NGR 33-015-169 | Owen, T. | 12 | 3015 |
| HQ-SB | Young, R. S. | TEXAS A&M UNIVERSITY | NSG 7037 | Fendler, J. H. | 12 | 3439 |
| HQ-SB | Young, R. S. | UNIV ALA-BIRMINGHAM | NGR 01-010-001 | Lacey, J. C., Jr. | 12 | 1040 |
| HQ-SB | Young, R. S. | UNIV OF ARIZONA | NGR 03-002-171 | Nagy, B. | 32 | 1139 |
| HQ-SB | Young, R. S. | UNIV CALIF-BERKELEY | NGL 05-003-003 | Calvin, M. | 32 | 1466 |
| HQ-SB | Young, R. S. | UNIV CALIF-BERKELEY | NGR 05-003-460 | Jukes, J. H. | 12 | 1482 |
| HQ-SB | Young, R. S. | UNIV CALIF-L ANGELES | NGR 05-007-221 | Kaplan, I. R. | 32 | 1562 |
| HQ-SB | Young, R. S. | UNIV CALIF-L ANGELES | NGR 05-007-407 | Schopf, J. W. | 32 | 1573 |
| HQ-SB | Young, R. S. | UNIV CALIF-SAN DIEGO | NGR 05-009-213 | Yayanos, A. A. | 51 | 1626 |
| HQ-SB | Young, R. S. | UNIV CALIF-SAN DIEGO | NGR 05-009-218 | Miller, S. L. | 12 | 1627 |
| HQ-SB | Young, R. S. | UNIV CALIF-SAN FRAN | NSG 7151 | Stoeckenius, W. | 51 | 1653 |
| HQ-SB | Young, R. S. | UNIV CALIF-S BARBARA | NGR 05-010-035 | Cloud, P. E. | 32 | 1656 |
| HQ-SB | Young, R. S. | UNIV OF HAWAII-MANOA | NGL 12-001-042 | Siegel, S. M. | 51 | 2025 |
| HQ-SB | Young, R. S. | UNIV OF HAWAII-MANOA | NGR 12-001-109 | Folsome, C. E. | 12 | 2028 |
| HQ-SB | Young, R. S. | UNIV HOUSTON-HOUSTON | NGR 44-005-002 | Oro, J. | 32 | 3465 |
| HQ-SB | Young, R. S. | UNIV HOUSTON-HOUSTON | NGR 44-005-091 | Becker, R. S. | 12 | 3466 |
| HQ-SB | Young, R. S. | UNIV ILLINOIS-URBANA | NSG 7044 | Woese, C. R. | 12 | 2096 |
| HQ-SB | Young, R. S. | UNIV MARYLAND-COL PK | NGR 21-002-317 | Ponnamperuma, C. A. | 12 | 2332 |
| HQ-SB | Young, R. S. | UNIV OF MIAMI | NGR 10-007-008 | Fox, S. W. | 12 | 1942 |
| HQ-SB | Hall, L. B. | U MINN-MNPLS-ST PAUL | NGL 24-005-160 | Straub, C. P. | 51 | 2629 |
| HQ-SB | Young, R. S. | UNIV OF ROCHESTER | NGR 33-019-002 | Hempfling, W. P. | 51 | 3036 |
| HQ-SB | Young, R. S. | UNIV SO CAROLINA-COL | NSG 7096 | Rohlfing, D. L. | 51 | 3313 |
| HQ-SB | Halstead, T. W. | UNIV OF TORONTO | NSG 7079 | Johnson, W. H. | 53 | 3815 |
| HQ-SB | Young, R. S. | UNIV OF VERMONT | NSG 7021 | Thanassi, J. W. | 12 | 3579 |
| HQ-SB | Geib, D. S. | UNIV OF WASHINGTON | NGR 48-002-130 | Gordon, M. P. | 51 | 3751 |
| HQ-SB | Young, R. S. | UTAH STATE UNIV | NSG 7038 | Swanson, L. W. | 32 | 3576 |
| HQ-SB | Saunders, J. F. | VIRGINIA COMNWLTH U | NGL 47-002-005 | Ham, W. T. | 51 | 3685 |
| HQ-SB | Young, R. S. | WORCESTER POLY INST | NSG 7154 | Danielli, J. F. | 51 | 2542 |
| HQ-SB | Young, R. S. | YALE UNIVERSITY | NGR 07-004-009 | Morowitz, H. J. | 51 | 1826 |
| HQ-SA | Roman, N. G. | BOWLING GRN STATE U | NSG 7022 | Ptak, R. L. | 11 | 3078 |
| HQ-SA | Rosendahl, J. D. | CALIF INST OF TECH | NGL 05-002-134 | Oke, J. B. | 11 | 1205 |
| HQ-SA | Bogges, N. W. | CALIF INST OF TECH | NGL 05-002-207 | Neugebauer, G. | 11 | 1211 |
| HQ-SA | Sofia, S. | CALIF INST OF TECH | NGR 05-002-160 | Vogt, R. E. | 11 | 1218 |
| HQ-SA | Bogges, N. W. | CALIF INST OF TECH | NGR 05-002-256 | Thorne, D. | 11 | 1220 |

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| HQ-SA | Opp, A. G. | CALIF INST OF TECH | NGR 05-002-284 | Garmire, G. P. | 11 | 1222 |
| HQ-SA | Bogges, N. W. | CALIF INST OF TECH | NSG 7140 | Neugebauer, G. | 11 | 1242 |
| HQ-SA | Roman, N. G. | CALIF INST OF TECH | NSG 7195 | Christysackmann, I. J. | 11 | 1245 |
| HQ-SA | Roman, N. G. | COLUMBIA UNIVERSITY | NGR 33-008-194 | Weisskopf, M. C. | 11 | 2882 |
| HQ-SA | Bogges, N. W. | COLUMBIA UNIVERSITY | NSG 7105 | Austin, P. M. | 11 | 2894 |
| HQ-SA | Sofia, S. | COLUMBIA UNIVERSITY | NSG 7248 | Weisskopf, M. C. | 11 | 2897 |
| HQ-SA | Opp, A. G. | CORNELL UNIVERSITY | NGR 33-010-145 | Greisen, K. I. | 11 | 2916 |
| HQ-SA | Bogges, N. W. | CORNELL UNIVERSITY | NGR 33-010-172 | Harwit, M. O. | 11 | 2919 |
| HQ-SA | Rosendhal, J. D. | HARVARD UNIVERSITY | NASW 2938 | Noyes, R. W. | 49 | 2390 |
| HQ-SA | Bogges, N. W. | HARVARD UNIVERSITY | NGR 22-007-270 | Fazio, G. G. | 11 | 2402 |
| HQ-SA | Sofia, S. | HARVARD UNIVERSITY | NGR 22-007-272 | Cameron, A. G. | 11 | 2403 |
| HQ-SA | Rosendhal, J. D. | INDIANA U-BLOOMINGTN | NGL 15-003-002 | Johnson, H. R. | 11 | 2107 |
| HQ-SA | Opp, A. G. | LA STATE U-BAT ROUGE | NGR 19-001-012 | Huggett, R. W. | 11 | 2248 |
| HQ-SA | Bogges, N. W. | MASS INST OF TECH | NGR 22-009-526 | Weiss, R. | 11 | 2464 |
| HQ-SA | Opp, A. G. | MASS INST OF TECH | NGR 22-009-785 | Clark, G. W. | 13 | 2482 |
| HQ-SA | Roman, N. G. | MASS INST OF TECH | NSG 7091 | Weiss, R. | 11 | 2522 |
| HQ-SA | Bogges, N. W. | MASS INST OF TECH | NSG 7186 | Kleinmann, S. G. | 11 | 2525 |
| HQ-SA | Wood, D. B. | MONTANA STATE UNIV | NGR 27-001-040 | Nordtvedt, K., Jr. | 11 | 2719 |
| HQ-SA | Roman, N. G. | NEW MEX ST U-LAS CR | NGL 32-003-069 | Liefeld, R. J. | 11 | 2810 |
| HQ-SA | Rosendahl, J. D. | NEW YORK UNIVERSITY | NGR 33-016-196 | Glassgold, A. E. | 13 | 2946 |
| HQ-SA | Lazarus, A. J. | NEW YORK UNIVERSITY | NSG 7116 | Korff, S. A. | 11 | 2957 |
| HQ-SA | Rosendhal, J. D. | NORTHWESTERN UNIV | NGL 14-007-041 | Huang, S. S. | 11 | 2040 |
| HQ-SA | Roman, N. G. | NORTHWESTERN UNIV | NGR 14-007-122 | Bahng, J. D. | 11 | 2044 |
| HQ-SA | Roman, N. G. | PRINCETON UNIVERSITY | NGL 31-001-007 | Spitzer, L., Jr. | 11 | 2763 |
| HQ-SA | Roman, N. G. | PRINCETON UNIVERSITY | NGR 31-001-001 | Millich, F. | 11 | 2767 |
| HQ-SA | Roman, N. G. | PRINCETON UNIVERSITY | NSR 31-001-901 | Lowrance, J. L. | 11 | 2791 |
| HQ-SA | Rosendhal, J. D. | PURDUE UNIVERSITY | NSG 7167 | Moffett, T. J. | 11 | 2141 |
| HQ-SA | Sofia, S. | RICE UNIVERSITY | NSG 7015 | Clayton, D. D. | 11 | 3395 |
| HQ-SA | Sofia, S. | STANFORD UNIVERSITY | NGR 05-020-452 | Hofstadter, R. | 11 | 1400 |
| HQ-SA | Bogges, N. W. | STANFORD UNIVERSITY | NGR 05-020-510 | Petrosian, R. | 11 | 1402 |
| HQ-SA | Jordan, S. D. | STANFORD UNIVERSITY | NGR 05-020-559 | Wilcox, J. M. | 11 | 1403 |
| HQ-SA | Sofia, S. | STANFORD UNIVERSITY | NGR 05-020-668 | Sturrock, P. A. | 11 | 1409 |
| HQ-SA | Roman, N. G. | ST U NY COL-GENESE | NGR 33-219-002 | Meisel, D. D. | 11 | 3030 |
| HQ-SA | Sofia, S. | STATE U NY-STONY BRK | NGR 33-015-180 | Forman, M. A. | 11 | 3016 |
| HQ-SA | Roman, N. G. | UNIV OF ARIZONA | NGL 03-002-017 | Bashkin, S. | 11 | 1130 |
| HQ-SA | Roman, N. G. | UNIV OF ARIZONA | NGL 03-002-032 | Tift, W. G. | 11 | 1132 |
| HQ-SA | Opp, A. G. | UNIV OF ARIZONA | NGR 03-002-071 | Bowen, T. | 11 | 1137 |
| HQ-SA | Bogges, N. B. | UNIV OF ARIZONA | NGR 03-002-269 | Low, F. J. | 11 | 1141 |
| HQ-SA | Bogges, N. W. | UNIV OF ARIZONA | NGR 03-002-371 | Hoffman, W. F. | 11 | 1145 |
| HQ-SA | Sofia, S. | UNIV OF ARIZONA | NSG 7101 | Jokippi, J. | 11 | 1163 |
| HQ-SA | Roman, N. G. | UNIV OF ARIZONA | NSG 7142 | Tift, W. G. | 45 | 1166 |
| HQ-SA | Rosendhal, J. D. | UNIV ARKANSAS-FAYETV | NSG 7106 | Hughes, R. H. | 11 | 1179 |
| HQ-SA | Bogges, N. W. | UNIV CALIF-BERKELEY | NGL 05-003-272 | Townes, C. H. | 11 | 1469 |
| HQ-SA | Sofia, S. | UNIV CALIF-BERKELEY | NGR 05-003-376 | Price, P. B. | 11 | 1477 |
| HQ-SA | Sofia, S. | UNIV CALIF-BERKELEY | NGR 05-003-513 | Heckman, H. H. | 11 | 1487 |
| HQ-SA | Sofia, S. | UNIV CALIF-BERKELEY | NGR 05-003-553 | Alvarez, L. W. | 11 | 1488 |
| HQ-SA | Rosendhal, J. D. | UNIV CALIF-BERKELEY | NGR 05-003-578 | Silk, J. I. | 11 | 1491 |
| HQ-SA | Rosendhal, J. D. | UNIV CALIF-BERKELEY | NSG 7139 | Bowyer, C. S. | 11 | 1507 |
| HQ-SA | Bogges, N. W. | UNIV CALIF-BERKELEY | NSG 7205 | Richards, P. L. | 11 | 1509 |
| HQ-SA | Sofia, S. | UNIV CALIF-RIVERSIDE | NGR 05-008-022 | White, R. S. | 11 | 1593 |
| HQ-SA | Opp, A. G. | UNIV CALIF-SAN DIEGO | NGL 05-005-003 | Peterson, L. E. | 13 | 1606 |
| HQ-SA | Roman, N. G. | UNIV CALIF-SAN DIEGO | NGL 05-005-004 | Gould, R. J. | 11 | 1607 |
| HQ-SA | Aucremanne, M. J. | UNIV CALIF-SAN DIEGO | NGR 05-009-188 | McIlwain, C. E. | 11 | 1624 |
| HQ-SA | Bogges, N. W. | UNIV CALIF-S CRUZ | NGR 05-061-015 | Rank, D. M. | 11 | 1662 |
| HQ-SA | Opp, A. G. | UNIV OF CHICAGO | NGL 14-001-001 | Parker, E. N. | 11 | 2055 |
| HQ-SA | Pellerin, C. | UNIV OF CHICAGO | NGL 14-001-005 | Meyer, P. | 11 | 2056 |
| HQ-SA | Sofia, S. | UNIV OF CHICAGO | NGL 14-001-006 | Simpson, J. A. | 11 | 2057 |
| HQ-SA | Rosendhal, J. D. | UNIV OF CHICAGO | NGR 14-001-147 | Hobbs, L. M. | 11 | 2065 |

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| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
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| HQ-SA | Rosendhal, J. D. | UNIV COLORADO-BOLDR | NASW 2913 | Laurence, G. M. | 11 | 1772 |
| HQ-SA | Roman, N. G. | UNIV COLORADO-BOLDR | NGR 06-003-179 | Lillie, C. F. | 11 | 1780 |
| HQ-SA | Mitchell, J. L. | UNIV COLORADO-BOLDR | NGR 06-003-215 | Speiser, T. W. | 13 | 1784 |
| HQ-SA | Calahan, H. D. | UNIV COLORADO-BOLDR | NGR 06-003-216 | Linsky, J. L. | 11 | 1785 |
| HQ-SA | Roman, N. G. | UNIV COLORADO-BOLDR | NGR 06-003-222 | Lillie, C. F. | 11 | 1787 |
| HQ-SA | Sofia, S. | UNIV COLORADO-BOLDR | NSG 7128 | McCray, R. | 11 | 1796 |
| HQ-SA | Calahan, H. D. | UNIV OF DENVER | NGR 06-004-123 | Patel, V. L. | 13 | 1811 |
| HQ-SA | Rosendhal, J. D. | UNIV OF FLORIDA | NSG 7143 | Carr, T. D. | 11 | 1932 |
| HQ-SA | Roman, N. G. | UNIV MARYLAND-BALT | NGR 21-002-010 | Misner, C. W. | 11 | 2297 |
| HQ-SA | Opp, A. G. | UNIV MARYLAND-COL PK | NGR 21-002-066 | Earl, J. A. | 11 | 2324 |
| HQ-SA | Rosendhal, J. D. | UNIV MARYLAND-COL PK | NGR 21-002-073 | Griem, H. R. | 11 | 2325 |
| HQ-SA | Sofia, S. | UNIV MARYLAND-COL PK | NGR 21-002-224 | Gloeckler, G. | 11 | 2328 |
| HQ-SA | Rosendhal, J. D. | UNIV MICH-ANN ARBOR | NGR 23-005-464 | Hiltner, W. A. | 11 | 2581 |
| HQ-SA | Jordan, S. D. | UNIV MICH-ANN ARBOR | NSG 7004 | Haddock, F. T. | 13 | 2601 |
| HQ-SA | Opp, A. G. | U MINN-MNPLS-ST PAUL | NGR 24-005-050 | Waddington, C. J. | 11 | 2632 |
| HQ-SA | Roman, N. G. | U MINN-MNPLS-ST PAUL | NSR 24-005-245 | Luyten, W. J. | 11 | 2649 |
| HQ-SA | Sofia, S. | UNIV NEW HAMP-DURHAM | NGL 30-002-021 | Chupp, E. L. | 11 | 2741 |
| HQ-SA | Pellerin, C. | UNIV NEW HAMP-DURHAM | NGR 30-002-052 | Webber, W. R. | 11 | 2742 |
| HQ-SA | Bogges, N. W. | UNIV OF NEW MEXICO | NGR 32-004-068 | Peterson, A. W. | 11 | 2835 |
| HQ-SA | Calahan, H. D. | UNIV OF NEW MEXICO | NGR 32-004-086 | Ahluwalia, H. S. | 13 | 2836 |
| HQ-SA | Dubin, M. | UNIV OF PITTSBURGH | NGR 39-011-113 | Zipf, E. C., Jr. | 31 | 3282 |
| HQ-SA | Roman, N. G. | UNIV OF SO FLORIDA | NSG 7242 | Wilson, R. E. | 11 | 1951 |
| HQ-SA | Calahan, H. D. | UNIV OF SOUTHERN CAL | NGR 05-018-185 | Intriligator, D. S. | 13 | 1716 |
| HQ-SA | Rosendhal, J. D. | UNIV TEXAS-AUSTIN | NGR 44-012-209 | Vanden Bout, P. A. | 11 | 3498 |
| HQ-SA | Roman, N. G. | UNIV TEXAS-AUSTIN | NSG 7232 | Wheeler, J. C. | 11 | 3518 |
| HQ-SA | Opp, A. G. | UNIV TEXAS-DALLAS | NGR 44-004-133 | Allum, F. R. | 11 | 3534 |
| HQ-SA | Berko, F. W. | UNIV TEXAS-DALLAS | NSR 44-004-089 | Hoffman, J. H. | 13 | 3542 |
| HQ-SA | Rosendhal, J. D. | UNIV OF TOLEDO | NSG 7041 | Witt, A. N. | 11 | 3159 |
| HQ-SA | Roman, N. G. | UNIV OF TOLEDO | NSG 7138 | Molnar, M. R. | 11 | 3160 |
| HQ-SA | Roman, N. G. | UNIV OF VIRGINIA | NGL 47-005-066 | Frederick, L. W. | 11 | 3668 |
| HQ-SA | Sofia, S. | UNIV WISC-MADISON | NGL 50-002-044 | Kraushaar, W. L. | 11 | 3790 |
| HQ-SA | Bogges, N. W. | UNIV WISC-MADISON | NSG 7033 | Scherb, F. | 11 | 3802 |
| HQ-SA | Roman, N. G. | UNIV WISC-MADISON | NSG 7050 | Code, A. D. | 11 | 3803 |
| HQ-SA | Rosendhal, J. D. | UNIV WISC-MADISON | NSG 7133 | Savage, B. D. | 11 | 3804 |
| HQ-SA | Sofia, S. | UNIV OF WYOMING | NGR 51-001-035 | Tompkins, D. R., Jr. | 13 | 3812 |
| HQ-SA | Sofia, S. | WASHINGTON UNIVERSTY | NGR 26-008-001 | Klarmann, J. | 11 | 2712 |
| HQ-SL | French, B. M. | ARIZONA STATE UNIV | NGL 03-001-001 | Moore, C. B. | 32 | 1095 |
| HQ-SL | Williams, R. J. | ARIZONA STATE UNIV | NSG 7040 | Larimer, J. W. | 32 | 1098 |
| HQ-SL | Williams, R. J. | ARIZONA STATE UNIV | NSG 7217 | Holloway, J. R. | 32 | 1099 |
| HQ-SL | Brunk, W. E. | BRIGHAM YOUNG UNIV | NGR 45-001-032 | Jones, D. E. | 11 | 3554 |
| HQ-SL | Dwornik, S. E. | BROWN UNIVERSITY | NGR 40-002-088 | Mutch, T. A. | 32 | 3295 |
| HQ-SL | Williams, R. J. | BROWN UNIVERSITY | NGR 40-002-116 | Head, J. W., Jr. | 32 | 3297 |
| HQ-SL | Brunk, W. E. | CALIF INST OF TECH | NGL 05-002-003 | Muhleman, D. O. | 11 | 1200 |
| HQ-SL | Brunk, W. E. | CALIF INST OF TECH | NGL 05-002-007 | Neugebauer, G. | 11 | 1201 |
| HQ-SL | Williams, R. J. | CALIF INST OF TECH | NGL 05-002-105 | Ahrens, T. J. | 32 | 1204 |
| HQ-SL | Brunk, W. E. | CALIF INST OF TECH | NGL 05-002-140 | Munch, G. | 11 | 1207 |
| HQ-SL | Brunk, W. E. | CALIF INST OF TECH | NGR 05-002-114 | Muhleman, D. O. | 11 | 1214 |
| HQ-SL | Dwornik, S. E. | CALIF INST OF TECH | NGR 05-002-117 | Murray, B. C. | 32 | 1215 |
| HQ-SL | Brunk, W. E. | CALIF INST OF TECH | NGR 05-002-185 | Westphal, J. A. | 11 | 1219 |
| HQ-SL | Dwornik, S. E. | CALIF INST OF TECH | NGR 05-002-303 | Shoemaker, E. M. | 32 | 1225 |
| HQ-SL | Fellows, R. F. | CALIF INST OF TECH | NSG 7094 | Neugebauer, G. | 32 | 1237 |
| HQ-SL | Fellows, R. F. | CALIF INST OF TECH | NSG 7112 | Murray, B. C. | 31 | 1238 |
| HQ-SL | Dwornik, S. E. | CALIF INST OF TECH | NSG 7125 | Albee, A. L. | 19 | 1239 |
| HQ-SL | Williams, R. J. | CALIF INST OF TECH | NSG 7129 | Ahrens, T. J. | 32 | 1240 |
| HQ-SL | Brunk, W. E. | CALIF INST OF TECH | NSG 7136 | Leighton, R. B. | 11 | 1241 |
| HQ-SL | Dwornik, S. E. | CALIF INST OF TECH | NSG 7155 | Murray, B. C. | 32 | 1243 |
| HQ-SL | Dwornik, S. E. | CALIF INST OF TECH | NSG 7160 | Anderson, D. L. | 32 | 1244 |
| HQ-SL | Williams, R. J. | CALIF INST OF TECH | NSG 7202 | Burnett, D. S. | 32 | 1246 |

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| HQ-SL | Williams, R. J. | COLUMBIA UNIVERSITY | NSG 7194 | Langseth, M. G. | 32 | 2895 |
| HQ-SL | French, B. M. | COLUMBIA UNIVERSITY | NSG 7200 | O'Nions, R. K. | 32 | 2896 |
| HQ-SL | Tarver, P. | CORNELL UNIVERSITY | NASW 2573 | Wehe, R. L. | 49 | 2905 |
| HQ-SL | Tarver, P. | CORNELL UNIVERSITY | NASW 2750 | Wehe, R. L. | 49 | 2906 |
| HQ-SL | Fellows, R. F. | CORNELL UNIVERSITY | NGL 33-010-082 | Sagan, C. E. | 31 | 2909 |
| HQ-SL | Fellows, R. F. | CORNELL UNIVERSITY | NGL 33-010-186 | Gierasch, P. J. | 31 | 2911 |
| HQ-SL | Williams, R. J. | CORNELL UNIVERSITY | NGR 33-010-178 | Kuckes, A. F. | 32 | 2920 |
| HQ-SL | Brunk, W. E. | CORNELL UNIVERSITY | NGR 33-010-210 | Harwit, M. O. | 11 | 2924 |
| HQ-SL | Dwornik, S. E. | CORNELL UNIVERSITY | NGR 33-010-220 | Sagan, C. E. | 32 | 2925 |
| HQ-SL | Brunk, W. E. | CORNELL UNIVERSITY | NSG 7126 | Veverka, J. | 11 | 2933 |
| HQ-SL | Dwornik, S. E. | CORNELL UNIVERSITY | NSG 7156 | Veverka, J. | 32 | 2935 |
| HQ-SL | Fellows, R. F. | CORNELL UNIVERSITY | NSG 7243 | Elliot, J. L. | 31 | 2937 |
| HQ-SL | Brunk, W. E. | FLORIDA STATE UNIV | NGR 10-004-056 | Hunt, R. H. | 11 | 1909 |
| HQ-SL | Fellows, R. F. | GEORGIA INST OF TECH | NGL 11-002-004 | Edwards, H. D. | 31 | 1980 |
| HQ-SL | Fellows, R. F. | HARVARD UNIVERSITY | NGL 22-007-228 | Goody, R. M. | 31 | 2394 |
| HQ-SL | Fellows, R. F. | HARVARD UNIVERSITY | NGR 22-007-242 | Goody, R. M. | 31 | 2397 |
| HQ-SL | Fellows, R. F. | HARVARD UNIVERSITY | NGR 22-007-267 | McElroy, M. B. | 31 | 2400 |
| HQ-SL | Dwornik, S. E. | HARVARD UNIVERSITY | NGR 22-007-269 | Cameron, A. G. | 32 | 2401 |
| HQ-SL | Fellows, R. F. | HARVARD UNIVERSITY | NSG 7095 | Pipkin, F. M. | 31 | 2410 |
| HQ-SL | Williams, R. J. | HARVARD UNIVERSITY | NSG 7191 | Cameron, A. G. | 32 | 2413 |
| HQ-SL | Fellows, R. F. | KANSAS STATE UNIV | NGL 17-001-026 | Williams, D. | 31 | 2184 |
| HQ-SL | Brunk, W. E. | MASS INST OF TECH | NGL 22-009-016 | Barrett, A. H. | 32 | 2446 |
| HQ-SL | Fellows, R. F. | MASS INST OF TECH | NGL 22-009-521 | Lewis, J. S. | 31 | 2453 |
| HQ-SL | Young, R. S. | MASS INST OF TECH | NGR 22-009-102 | Biemann, K. | 42 | 2458 |
| HQ-SL | Brunk, W. E. | MASS INST OF TECH | NGR 22-009-473 | McCord, T. B. | 11 | 2463 |
| HQ-SL | Fellows, R. F. | MASS INST OF TECH | NGR 22-009-583 | McCord, T. B. | 11 | 2467 |
| HQ-SL | Brunk, W. E. | MASS INST OF TECH | NGR 22-009-672 | Pettengill, G. H. | 11 | 2470 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NGR 22-009-790 | McCord, T. B. | 32 | 2483 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NSG 7010 | Counselman, C. C., III | 32 | 2518 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NSG 7048 | McCord, T. B. | 32 | 2519 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NSG 7077 | Lewis, J. S. | 32 | 2520 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NSG 7081 | Toksoz, M. N. | 32 | 2521 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NSG 7115 | Madden, T. R. | 32 | 2523 |
| HQ-SL | Williams, R. J. | MASS INST OF TECH | NSG 7118 | Counselman, C. C., III | 32 | 2524 |
| HQ-SL | Brunk, W. E. | NEW MEX ST U-LAS CR | NGL 32-003-001 | Beebe, R. F. | 11 | 2809 |
| HQ-SL | Dwornik, S. E. | NORTHERN ARIZONA U | NSG 7182 | Cotera, A. S. | 32 | 1100 |
| HQ-SL | Dwornik, S. E. | OREGON STATE UNIV | NSG 7178 | Komar, P. D. | 32 | 3185 |
| HQ-SL | Williams, R. J. | PENN STATE U-UNIV PK | NSG 7120 | Muan, A. | 32 | 3260 |
| HQ-SL | Williams, R. J. | PENN STATE U-UNIV PK | NSG 7193 | Alexander, S. S. | 32 | 3261 |
| HQ-SL | Fellows, R. F. | POLY INST OF NY | NGR 33-006-068 | Gross, S. H. | 31 | 2961 |
| HQ-SL | Strickland, A. T. | PRINCETON UNIVERSITY | NGR 31-001-202 | Dicke, R. H. | 13 | 2770 |
| HQ-SL | Brunk, W. E. | PRINCETON UNIVERSITY | NGR 31-001-242 | Smith, W. H. | 11 | 2771 |
| HQ-SL | Brunk, W. E. | PRINCETON UNIVERSITY | NSG 7053 | Danielson, R. E. | 11 | 2787 |
| HQ-SL | Williams, R. J. | PRINCETON UNIVERSITY | NSG 7080 | Phinney, R. A. | 32 | 2788 |
| HQ-SL | French, B. M. | PURDUE UNIVERSITY | NGL 15-005-140 | Lipschutz, M. E. | 32 | 2123 |
| HQ-SL | Fellows, R. F. | RENSSELAER POLY-NY | NGL 33-018-007 | Hartek, P. | 31 | 2976 |
| HQ-SL | Tarver, P. | RENSSELAER POLY-NY | NGL 33-018-091 | Yerazunis, S. W. | 49 | 2977 |
| HQ-SL | Williams, R. J. | RICE UNIVERSITY | NSG 7032 | Michel, F. C. | 31 | 3397 |
| HQ-SL | Fellows, R. F. | RICE UNIVERSITY | NSG 7043 | Chamberlain, J. W. | 31 | 3398 |
| HQ-SL | Fellows, R. F. | ST LOUIS UNIVERSITY | NGR 26-006-042 | Pallman, A. J. | 31 | 2686 |
| HQ-SL | Williams, R. J. | SAN DIEGO STATE UNIV | NSG 7026 | Reh fuss, D. E. | 32 | 1275 |
| HQ-SL | Fellows, R. F. | STANFORD UNIVERSITY | NGL 05-020-014 | Eshleman, V. R. | 31 | 1382 |
| HQ-SL | Dwornik, S. E. | STANFORD UNIVERSITY | NGR 05-020-649 | Howard, H. T. | 32 | 1408 |
| HQ-SL | Williams, R. J. | STANFORD UNIVERSITY | NSG 7029 | Tyler, G. L. | 32 | 1437 |
| HQ-SL | Williams, R. J. | STANFORD UNIVERSITY | NSG 7117 | Nur, A. M. | 32 | 1441 |
| HQ-SL | Fellows, R. F. | STATE UNIV NY-ALBANY | NSG 7093 | Weinberg, J. L. | 31 | 2993 |
| HQ-SL | Dwornik, S. E. | STATE UNIV NY-BUFFAL | NGR 33-015-108 | King, J. S. | 32 | 3002 |
| HQ-SL | Fellows, R. F. | STATE U NY-STONY BRK | NGR 33-015-139 | Varanasi, P. | 31 | 3010 |

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| HQ-SL | Brunk, W. E. | STATE U NY-STONY BRK | NGR 33-015-141 | Owen, T. | 11 | 3011 |
| HQ-SL | Williams, R. J. | STATE U NY-STONY BRK | NSG 7150 | Papike, J. J. | 32 | 3023 |
| HQ-SL | Williams, R. J. | STATE U NY-STONY BRK | NSG 7225 | Schaeffer, O. A. | 32 | 3024 |
| HQ-SL | Fellows, R. F. | TEXAS A&M UNIVERSITY | NGR 44-001-117 | Plass, G. N. | 31 | 3435 |
| HQ-SL | Williams, R. J. | TEXAS A&M UNIVERSITY | NGR 44-001-152 | Rowe, M. W. | 32 | 3436 |
| HQ-SL | Williams, R. J. | TEXAS A&M UNIVERSITY | NSG 7189 | Gangi, A. F. | 32 | 3440 |
| HQ-SL | Dwornik, S. E. | TULANE UNIVERSITY | NGR 19-002-038 | Meyer, J. D. | 32 | 2263 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NGL 03-002-002 | Sonett, C. P. | 11 | 1128 |
| HQ-SL | Fellows, R. F. | UNIV OF ARIZONA | NGL 03-002-019 | Hoenig, S. A. | 31 | 1131 |
| HQ-SL | Fellows, R. F. | UNIV OF ARIZONA | NGL 03-002-081 | Gehrels, T. | 11 | 1133 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NGL 03-002-122 | Roemer, E. | 11 | 1134 |
| HQ-SL | Williams, R. J. | UNIV OF ARIZONA | NGL 03-002-191 | Strom, R. G. | 32 | 1135 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NGR 03-002-219 | Gehrels, A. M. | 11 | 1140 |
| HQ-SL | Dwornik, S. E. | UNIV OF ARIZONA | NGR 03-002-370 | Sonett, C. P. | 32 | 1144 |
| HQ-SL | French, B. M. | UNIV OF ARIZONA | NSG 7011 | Wilkening, L. L. | 32 | 1157 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NSG 7045 | Hubbard, W. B., Jr. | 11 | 1161 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NSG 7070 | Fink, U. W. | 11 | 1162 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NSG 7114 | Rieke, G. H. | 11 | 1164 |
| HQ-SL | Fellows, R. F. | UNIV OF ARIZONA | NSG 7123 | Gehrels, A. M. | 11 | 1165 |
| HQ-SL | Dwornik, S. E. | UNIV OF ARIZONA | NSG 7146 | Strom, R. G. | 32 | 1167 |
| HQ-SL | Williams, R. J. | UNIV OF ARIZONA | NSG 7201 | Greenberg, R. | 32 | 1169 |
| HQ-SL | Brunk, W. E. | UNIV OF ARIZONA | NSG 7238 | Hubbard, W. B., Jr. | 11 | 1170 |
| HQ-SL | French, B. M. | UNIV OF ARIZONA | NSG 7246 | Gehrels, A. M. | 32 | 1171 |
| HQ-SL | French, B. M. | UNIV OF ARIZONA | NSG 7249 | Zellner, B. H. | 32 | 1172 |
| HQ-SL | Dwornik, S. E. | U ARKANSAS-MONTICELLO | NGR 04-008-001 | Dehon, R. A. | 32 | 1183 |
| HQ-SL | Williams, R. J. | U ARKANSAS-MONTICELLO | NSG 7216 | Dehon, R. A. | 32 | 1184 |
| HQ-SL | Dwornik, S. E. | U ARKANSAS-MONTICELLO | NSG 7244 | Dehon, R. A. | 32 | 1185 |
| HQ-SL | Fellows, R. F. | UNIV CALIF-BERKELEY | NGL 05-003-286 | Pimental, G. C. | 31 | 1470 |
| HQ-SL | Donn, B. D. | UNIV CALIF-BERKELEY | NGR 05-003-309 | Cunningham, L. E. | 31 | 1476 |
| HQ-SL | Brunk, W. E. | UNIV CALIF-BERKELEY | NGR 05-003-452 | Townes, C. H. | 11 | 1481 |
| HQ-SL | Williams, R. J. | UNIV CALIF-BERKELEY | NSG 7127 | Anderson, K. A. | 39 | 1506 |
| HQ-SL | Brunk, W. E. | UNIV CALIF-BERKELEY | NSG 7152 | Silver, S. | 11 | 1508 |
| HQ-SL | Donn, B. D. | UNIV CALIF-L ANGELES | NGL 05-007-005 | Wetherill, G. W. | 11 | 1556 |
| HQ-SL | Dwornik, S. E. | UNIV CALIF-L ANGELES | NGR 05-007-317 | Schubert, G. | 32 | 1565 |
| HQ-SL | French, B. M. | UNIV CALIF-L ANGELES | NGR 05-007-329 | Wasson, J. T. | 32 | 1568 |
| HQ-SL | Williams, R. J. | UNIV CALIF-L ANGELES | NGR 05-007-351 | Coleman, P. J., Jr. | 32 | 1571 |
| HQ-SL | Williams, R. J. | UNIV CALIF-L ANGELES | NSG 7052 | Kieffer, S. W. | 32 | 1586 |
| HQ-SL | Dwornik, S. E. | UNIV CALIF-L ANGELES | NSG 7113 | Kaula, W. M. | 11 | 1587 |
| HQ-SL | Fellows, R. F. | UNIV CALIF-L ANGELES | NSG 7164 | Schubert, G. | 31 | 1589 |
| HQ-SL | Fellows, R. F. | UNIV CALIF-L ANGELES | NSG 7239 | Aller, L. H. | 31 | 1591 |
| HQ-SL | Williams, R. J. | UNIV CALIF-SAN DIEGO | NGL 05-009-002 | Arrhenius, G. | 32 | 1609 |
| HQ-SL | French, B. F. | UNIV CALIF-SAN DIEGO | NGL 05-009-004 | Arnold, J. R. | 32 | 1610 |
| HQ-SL | French, B. M. | UNIV CALIF-SAN DIEGO | NGL 05-009-005 | Suess, H. E. | 19 | 1611 |
| HQ-SL | Williams, R. J. | UNIV CALIF-SAN DIEGO | NGR 05-005-005 | Arnold, J. R. | 32 | 1616 |
| HQ-SL | Fellows, R. F. | UNIV CALIF-SAN DIEGO | NGR 05-009-110 | Alfven, H. | 11 | 1622 |
| HQ-SL | Williams, R. J. | UNIV CALIF-SAN DIEGO | NSG 7027 | Arnold, J. R. | 32 | 1640 |
| HQ-SL | Dwornik, S. E. | UNIV CALIF-SAN DIEGO | NSG 7102 | Alfven, H. | 32 | 1642 |
| HQ-SL | French, B. M. | UNIV CALIF-SAN DIEGO | NSG 7121 | MacDougall, J. D. | 32 | 1643 |
| HQ-SL | Dwornik, S. E. | UNIV CALIF-SAN DIEGO | W-14108 | Alfven, H. | 32 | 1645 |
| HQ-SL | Dwornik, S. E. | UNIV CALIF-S BARBARA | NGR 05-010-062 | Peale, S. J. | 32 | 1657 |
| HQ-SL | French, B. M. | UNIV OF CHICAGO | NGL 14-001-010 | Anders, E. | 32 | 2058 |
| HQ-SL | Dwornik, S. E. | UNIV OF CHICAGO | NGR 14-001-135 | Turkevich, A. L. | 32 | 2064 |
| HQ-SL | Fellows, R. F. | UNIV OF CHICAGO | NGR 14-001-194 | Kaplan, L. D. | 31 | 2067 |
| HQ-SL | French, B. M. | UNIV OF CHICAGO | NGR 14-001-249 | Grossman, L. | 32 | 2071 |
| HQ-SL | Williams, R. J. | UNIV OF CHICAGO | NSG 7212 | Schramm, D. N. | 32 | 2074 |
| HQ-SL | Brunk, W. E. | UNIV OF CINCINNATI | NGR 36-004-075 | Herget, P. | 11 | 3139 |
| HQ-SL | Fellows, R. F. | UNIV COLORADO-BOLDR | NGL 06-003-052 | Barth, C. A. | 31 | 1773 |
| HQ-SL | Fellows, R. F. | UNIV COLORADO-BOLDR | NGL 06-003-064 | Barth, C. A. | 31 | 1775 |

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| HQ-SL | Brunk, W. E. | UNIV COLORADO-BOLDR | NGR 06-003-127 | Barth, C. A. | 31 | 1778 |
| HQ-SL | Dwornik, S. E. | UNIV COLORADO-BOLDR | NGR 06-003-199 | Peterson, J. E. | 32 | 1782 |
| HQ-SL | Fellows, R. F. | UNIV OF FLORIDA | NGL 10-005-008 | Green, A. S. | 31 | 1921 |
| HQ-SL | Dwornik, S. E. | UNIV OF GEORGIA | NGR 11-003-037 | Howard, H. T. | 32 | 2016 |
| HQ-SL | Strickland, A. T. | UNIV OF HAWAII-MANOA | NASW 2326 | Jefferies, J. T. | 11 | 2020 |
| HQ-SL | Brunk, W. E. | UNIV OF HAWAII-MANOA | NGL 12-001-057 | Jefferies, J. T. | 11 | 2026 |
| HQ-SL | Strickland, A. T. | UNIV OF HAWAII-MANOA | NGR 12-001-127 | Jefferies, J. T. | 32 | 2029 |
| HQ-SL | Strickland, A. T. | UNIV OF HAWAII-MANOA | NSG 7179 | Berg, E. | 19 | 2032 |
| HQ-SL | Brunk, W. E. | UNIV OF HAWAII-MANOA | NSR 12-001-019 | Jefferies, J. T. | 11 | 2033 |
| HQ-SL | Dwornik, S. E. | UNIV HOUSTON-HOUSTON | NGR 44-005-131 | King, E. A., Jr. | 32 | 3467 |
| HQ-SL | Williams, R. J. | UNIV HOUSTON-HOUSTON | NSG 7198 | Butler, J. C. | 32 | 3473 |
| HQ-SL | Brunk, W. E. | UNIV ILLINOIS-URBANA | NGR 14-005-176 | Dickel, J. R. | 11 | 2079 |
| HQ-SL | Dwornik, S. E. | UNIV OF KANSAS | NGR 17-002-106 | Warnke, D. E. | 32 | 2196 |
| HQ-SL | Brunk, W. E. | UNIV MARYLAND-COL PK | NGR 21-002-002 | Opik, E. J. | 11 | 2322 |
| HQ-SL | Brunk, W. E. | UNIV MARYLAND-COL PK | NGR 21-002-199 | Kundu, M. R. | 13 | 2327 |
| HQ-SL | Williams, R. J. | UNIV MARYLAND-COL PK | NSG 7046 | Adler, I. | 32 | 2364 |
| HQ-SL | Brunk, W. E. | UNIV OF MASS-AMHERST | NGL 22-010-023 | Irvine, W. M. | 11 | 2537 |
| HQ-SL | Dwornik, S. E. | UNIV OF MASS-AMHERST | NGR 22-010-076 | McGill, G. E. | 32 | 2540 |
| HQ-SL | French, B. M. | UNIV OF MIAMI | NSG 7245 | Fisher, D. E. | 32 | 1946 |
| HQ-SL | Fellows, R. F. | UNIV MICH-ANN ARBOR | NGR 23-005-094 | Liu, W. C. | 31 | 2578 |
| HQ-SL | Fellows, R. F. | UNIV MICH-ANN ARBOR | NGR 23-005-540 | Bartman, F. L. | 31 | 2586 |
| HQ-SL | Fellows, R. F. | U MINN-MNPLS-ST PAUL | NGL 24-005-009 | Nier, A. O. | 31 | 2628 |
| HQ-SL | Fellows, R. F. | U MINN-MNPLS-ST PAUL | NGR 24-005-196 | Nier, A. O. | 31 | 2633 |
| HQ-SL | Fellows, R. F. | UNIV NEBRASKA-LINCLN | NGR 28-004-021 | Samson, J. A. | 31 | 2726 |
| HQ-SL | Stuart-Alexander, D. E. | UNIV OF NEW MEXICO | NGL 32-004-064 | Keil, K. | 32 | 2832 |
| HQ-SL | Dwornik, S. E. | UNIV OF NEW MEXICO | NGR 32-004-062 | Elston, W. E. | 32 | 2834 |
| HQ-SL | Williams, R. J. | UNIV OREGON-EUGENE | NGR 38-003-020 | Weill, D. F. | 32 | 3189 |
| HQ-SL | Fellows, R. F. | UNIV OF PITTSBURGH | NGL 39-011-013 | Fite, W. L. | 31 | 3277 |
| HQ-SL | Fellows, R. F. | UNIV OF PITTSBURGH | NGL 39-011-030 | Zipf, E. C., Jr. | 31 | 3278 |
| HQ-SL | Williams, R. J. | UNIV OF PITTSBURGH | NGL 39-011-085 | Hapke, B. W. | 32 | 3280 |
| HQ-SL | Fellows, R. F. | UNIV OF PITTSBURGH | NGR 39-011-137 | Biondi, M. A. | 31 | 3283 |
| HQ-SL | Dwornik, S. E. | UNIV OF PITTSBURGH | NSG 7147 | Hapke, B. W. | 11 | 3291 |
| HQ-SL | Williams, R. J. | UNIV OF PITTSBURGH | NSG 7203 | Hapke, B. W. | 32 | 3292 |
| HQ-SL | Dwornik, S. E. | UNIV OF SANTA CLARA | NGR 05-017-037 | Greeley, R. | 32 | 1696 |
| HQ-SL | Williams, R. J. | UNIV OF SANTA CLARA | NSG 7141 | Greeley, R. | 32 | 1702 |
| HQ-SL | Fellows, R. F. | UNIV SO CAROLINA-COL | NGL 41-002-003 | Durig, J. R. | 31 | 3311 |
| HQ-SL | Dwornik, S. E. | UNIV SO CAROLINA-COL | NSG 7076 | Nummedal, D. | 32 | 3312 |
| HQ-SL | Fellows, R. F. | UNIV OF SOUTHERN CAL | NGR 05-018-178 | Maxworthy, T. | 31 | 1713 |
| HQ-SL | Fellows, R. F. | UNIV OF SOUTHERN CAL | NGR 05-018-180 | Judge, D. L. | 31 | 1714 |
| HQ-SL | Fellows, R. F. | UNIV TENNESSEE-KNOXV | NGL 43-001-006 | Gailar, N. M. | 31 | 3338 |
| HQ-SL | Brunk, W. E. | UNIV TEXAS-AUSTIN | NGL 44-012-006 | Cogdell, J. R. | 11 | 3491 |
| HQ-SL | Brunk, W. E. | UNIV TEXAS-AUSTIN | NGL 44-012-055 | Douglas, J. N. | 11 | 3493 |
| HQ-SL | Brunk, W. E. | UNIV TEXAS-AUSTIN | NGR 44-012-152 | Mulholland, J. D. | 11 | 3495 |
| HQ-SL | Strickland, A. T. | UNIV TEXAS-AUSTIN | NGR 44-012-165 | Smith, H. J. | 32 | 3496 |
| HQ-SL | Dwornik, S. E. | UNIV TEXAS-AUSTIN | NGR 44-012-194 | Ingerson, F. E. | 32 | 3497 |
| HQ-SL | Strickland, A. T. | UNIV TEXAS-AUSTIN | NGR 44-012-219 | Mulholland, J. D. | 11 | 3499 |
| HQ-SL | Young, R. S. | UNIV TEXAS-AUSTIN | NGR 44-012-225 | Parker, P. L. | 32 | 3500 |
| HQ-SL | Dwornik, S. E. | UNIV TEXAS-AUSTIN | NGR 44-012-279 | Devaucouleurs, G. H. | 32 | 3506 |
| HQ-SL | Brunk, W. E. | UNIV TEXAS-AUSTIN | NGR 44-012-282 | Trafton, L. M. | 11 | 3507 |
| HQ-SL | Strickland, A. T. | UNIV TEXAS-AUSTIN | NSG 7159 | Latham, G. V. | 19 | 3516 |
| HQ-SL | Shirey, W. H. | UNIV TEXAS-AUSTIN | NSG 7162 | Shelus, P. J. | 19 | 3517 |
| HQ-SL | Smith, M. J. | UNIV TEXAS-AUSTIN | NSG 7250 | Muehlberger, W. R. | 32 | 3519 |
| HQ-SL | Fellows, R. F. | UNIV TEXAS-DALLAS | NGL 44-004-001 | Johnson, F. S. | 31 | 3528 |
| HQ-SL | Fellows, R. F. | UNIV TEXAS-DALLAS | NGL 44-004-026 | Johnson, F. S. | 31 | 3529 |
| HQ-SL | Williams, R. J. | UNIV TEXAS-DALLAS | NSG 7034 | Hodges, R. R., Jr. | 31 | 3539 |
| HQ-SL | Fellows, R. F. | UNIV OF TOLEDO | W-14168 | Delsemme, A. H. | 19 | 3161 |
| HQ-SL | Dwornik, S. E. | UNIV OF UTAH | NGR 45-003-095 | Wilson, R. C. | 32 | 3567 |
| HQ-SL | Dwornik, S. E. | UNIV OF VIRGINIA | NGR 47-005-172 | Howard, A. | 32 | 3669 |

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|--------------------|-------------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| HQ-SL | French, B. M. | UNIV OF VIRGINIA | NGR 47-005-176 | Allen, R. O. | 32 | 3670 |
| HQ-SL | Fellows, R. F. | UNIV OF WASHINGTON | NGR 48-002-003 | Hodge, P. W. | 41 | 3748 |
| HQ-SL | Fellows, R. F. | UNIV OF WASHINGTON | NGR 48-002-033 | Hodge, P. W. | 11 | 3749 |
| HQ-SL | Brunk, W. E. | UNIV OF WASHINGTON | NGR 48-002-142 | Jin, R. S. | 11 | 3753 |
| HQ-SL | Dwornik, S. E. | UNIV OF WASHINGTON | NGR 48-002-153 | Vgolihi, F. C. | 32 | 3755 |
| HQ-SL | Fellows, R. F. | UNIV OF WASHINGTON | NGR 48-002-162 | Leovy, C. B. | 31 | 3757 |
| HQ-SL | Fellows, R. F. | UNIV OF WASHINGTON | NSG 7085 | Leovy, C. B. | 31 | 3760 |
| HQ-SL | Williams, R. J. | UNIV OF WASHINGTON | NSG 7173 | Adams, J. B. | 32 | 3761 |
| HQ-SL | Williams, R. J. | UNIV OF WASHINGTON | NSG 7174 | Adams, J. B. | 32 | 3762 |
| HQ-SL | Fellows, R. F. | UNIV WISC-MADISON | NGR 50-002-189 | Suomi, V. E. | 31 | 3794 |
| HQ-SL | Williams, R. J. | UNIV WISC-MADISON | NSG 7215 | Taylor, J. W. | 32 | 3805 |
| HQ-SL | Dwornik, S. E. | UNIV WISC-PARKSIDE | NGR 50-009-001 | Smith, E. I. | 32 | 3807 |
| HQ-SL | Fellows, R. F. | VIRGINIA POLY INST | NGL 47-004-080 | McGee, H. A. | 11 | 3698 |
| HQ-SL | Dwornik, S. E. | VIRGINIA POLY INST | NSG 7111 | Gilbert, C. | 32 | 3732 |
| HQ-SL | Dwornik, S. E. | WASHINGTON UNIVERSTY | NSG 7087 | Arvidson, R. E. | 32 | 2717 |
| HQ-SL | Dwornik, S. E. | WEST TEXAS ST UNIV | NGR 44-015-003 | Underwood, J. R. | 32 | 3550 |
| HQ-SL | Fellows, R. F. | YALE UNIVERSITY | NGL 07-004-043 | Cross, R. J., Jr. | 31 | 1825 |
| HQ-SL | Dwornik, S. E. | YALE UNIVERSITY | NGR 07-004-157 | Skinner, B. J. | 32 | 1827 |
| HQ-SL | Williams, R. J. | YALE UNIVERSITY | NGR 07-004-166 | Turekian, K. K. | 32 | 1828 |
| HQ-SM | Kosofsky, L. J. | BROWN UNIVERSITY | NASW 2827 | Head, J. W., III | 32 | 3294 |
| HQ-SM | Bryson, R. P. | CALIF INST OF TECH | NGL 05-002-069 | Anderson, D. L. | 32 | 1203 |
| HQ-SM | Stuart-Alexander, D. E. | CALIF INST OF TECH | NSG 7023 | Burnett, D. S. | 32 | 1235 |
| HQ-SM | Bryson, R. P. | CALIF INST OF TECH | NSG 7084 | Wasserburg, G. J. | 32 | 1236 |
| HQ-SM | Kosofsky, L. J. | CITY U N Y-GRAD SCHL | NSG 7028 | Saxena, S. K. | 32 | 2858 |
| HQ-SM | Stuart-Alexander, D. E. | CORNELL UNIVERSITY | NGL 33-010-005 | Gold, T. | 32 | 2907 |
| HQ-SM | Stuart-Alexander, D. E. | CORNELL UNIVERSITY | NGR 33-010-108 | Turcotte, D. L. | 32 | 2914 |
| HQ-SM | Kosofsky, L. J. | FAIRLEIGH-DICKNSON U | NGL 31-006-010 | Adams, J. B. | 32 | 2745 |
| HQ-SM | Kosofsky, L. J. | FAIRLEIGH-DICKNSON U | NSG 7047 | Hartung, J. B. | 32 | 2747 |
| HQ-SM | Stuartalexander, D. E. | LEHIGH UNIVERSITY | NGR 39-007-043 | Goldstein, J. I. | 32 | 3218 |
| HQ-SM | Kosofsky, L. J. | MASS INST OF TECH | NGL 22-009-187 | Press, F. | 32 | 2450 |
| HQ-SM | Bryson, R. P. | MASS INST OF TECH | NGR 22-009-350 | McCord, T. B. | 32 | 2461 |
| HQ-SM | Bryson, R. P. | NORTHWESTERN UNIV | NGL 14-007-016 | Hynek, J. A. | 32 | 2039 |
| HQ-SM | Bryson, R. P. | OREGON STATE UNIV | NGL 38-002-020 | Schmitt, R. A. | 32 | 3182 |
| HQ-SM | Bryson, R. P. | PENN STATE U-UNIV PK | NGL 39-009-010 | Gold, D. P. | 32 | 3239 |
| HQ-SM | Stuart-Alexander, D. E. | RICE UNIVERSITY | NSG 7025 | Lenzen, K. H. | 31 | 3396 |
| HQ-SM | Stuart-Alexander, D. E. | STATE U NY-STONY BRK | NSG 7036 | Hartung, J. B. | 32 | 3022 |
| HQ-SM | Hanley, J. B. | UNIV OF ARIZONA | NSG 7014 | Whitaker, E. A. | 32 | 1158 |
| HQ-SM | Stuart-Alexander, D. E. | UNIV OF ARIZONA | NSG 7020 | Sonett, C. P. | 32 | 1159 |
| HQ-SM | Stuart-Alexander, D. E. | UNIV CALIF-L ANGELES | NGL 05-007-002 | Kaula, W. M. | 32 | 1553 |
| HQ-SM | Bryson, R. P. | UNIV CALIF-L ANGELES | NGL 05-007-006 | Kennedy, G. C. | 32 | 1557 |
| HQ-SM | Bryson, R. P. | UNIV CALIF-S BARBARA | NSG 7122 | Fuller, M. D. | 32 | 1660 |
| HQ-SM | Strickland, A. T. | UNIV OF HAWAII-MANOA | NGF 12-001-102 | Jefferies, J. T. | 11 | 2023 |
| HQ-SM | Alexander, D. E. | UNIV MARYLAND-COL PK | NSG 7017 | Wasilewski, P. | 32 | 2363 |
| HQ-SM | Bryson, R. P. | UNIV MICH-ANN ARBOR | NGR 23-005-537 | Evans, B. J. | 32 | 2585 |
| HQ-SM | Hanley, J. B. | UNIV OF NEW MEXICO | NGL 32-004-011 | Elston, W. E. | 32 | 2829 |
| HQ-SM | Hanley, J. B. | UNIV OF NEW MEXICO | NSG 7066 | Elston, W. E. | 32 | 2839 |
| HQ-SM | Kosofsky, L. J. | UNIV OF PENNSYLVANIA | NSG 7031 | Friel, J. J. | 32 | 3268 |
| HQ-SM | Kosofsky, L. J. | UNIV OF PENNSYLVANIA | NSG 7119 | Friel, J. J. | 32 | 3269 |
| HQ-SM | Bryson, R. P. | UNIV TEXAS-AUSTIN | NGL 44-012-045 | Clabaugh, S. E. | 32 | 3492 |
| HQ-SM | Bryson, R. P. | UNIV OF UTAH | NSG 7090 | Ward, S. H. | 32 | 3570 |
| HQ-SM | Stuart-Alexander, D. E. | WASHINGTON UNIVERSTY | NSG 7016 | Hohenberg, C. M. | 32 | 2716 |
| HQ-ST | Cauffman, D. P. | BOSTON COLLEGE | NSG 7190 | Eather, R. H. | 13 | 2372 |
| HQ-ST | Timothy, A. F. | BRANDEIS UNIVERSITY | NSG 7098 | Stein, R. F. | 11 | 2378 |
| HQ-ST | Cauffman, D. P. | BRIGHAM YCUNG UNIV | NGR 45-001-011 | Jones, D. E. | 39 | 3553 |
| HQ-ST | Timothy, A. F. | CALIF INST OF TECH | NGL 05-002-034 | Henry, D. G. | 11 | 1202 |
| HQ-ST | Timothy, A. F. | CALIF INST OF TECH | NGR 05-002-142 | Zirin, H. | 11 | 1217 |
| HQ-ST | Timothy, A. F. | CALIF INST OF TECH | NGR 05-002-294 | Zirin, H. | 11 | 1223 |
| HQ-ST | Schmerling, E. R. | CALIF INST OF TECH | NGR 05-002-296 | Garmire, G. P. | 11 | 1224 |

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| HQ-ST | Timothy, A. F. | CALIF INST OF TECH | NGR 05-002-345 | Zirin, H. | 13 | 1231 |
| HQ-ST | Taylor, W. W. | CATHOLIC UNIVERSITY | NGR 09-005-063 | Whang, Y. C. | 13 | 1837 |
| HQ-ST | Taylor, W. L. | COLUMBIA UNIVERSITY | NGR 33-008-183 | Wolff, R. S. | 11 | 2879 |
| HQ-ST | Timothy, A. F. | COLUMBIA UNIVERSITY | NGR 33-008-189 | Wolff, R. S. | 11 | 2880 |
| HQ-ST | Timothy, A. F. | COLUMBIA UNIVERSITY | NGR 33-008-200 | Novick, R. | 11 | 2884 |
| HQ-ST | Timothy, A. F. | COLUMBIA UNIVERSITY | NSG 7075 | Novick, R. | 11 | 2893 |
| HQ-ST | Taylor, W. W. | CORNELL UNIVERSITY | NGR 33-010-161 | Farley, D. T. | 13 | 2918 |
| HQ-ST | Schmerling, E. R. | CORNELL UNIVERSITY | NSG 7104 | Walker, J. C. | 13 | 2932 |
| HQ-ST | Schmerling, E. R. | CORNELL UNIVERSITY | NSG 7135 | Auer, P. L. | 13 | 2934 |
| HQ-ST | Schmerling, E. R. | DARTMOUTH COLLEGE | NGR 30-001-041 | Morgan, M. G. | 13 | 2733 |
| HQ-ST | Schmerling, E. R. | DARTMOUTH COLLEGE | NSG 7097 | Sonnerup, B. | 11 | 2735 |
| HQ-ST | Cauffman, D. P. | GRAMBLING STATE UNIV | NGR 19-011-007 | Cummings, W. D. | 13 | 2238 |
| HQ-ST | Timothy, A. F. | HARVARD UNIVERSITY | NGL 22-007-006 | Parkinson, W. H. | 13 | 2391 |
| HQ-ST | Timothy, A. F. | HARVARD UNIVERSITY | NGR 22-007-202 | Parkinson, W. H. | 11 | 2396 |
| HQ-ST | Timothy, A. F. | HARVARD UNIVERSITY | NGR 22-007-257 | Maxwell, A. | 11 | 2399 |
| HQ-ST | Timothy, A. F. | HARVARD UNIVERSITY | NSG 7018 | Noyes, R. W. | 11 | 2409 |
| HQ-ST | Timothy, A. F. | HARVARD UNIVERSITY | NSG 7175 | Reeves, E. M. | 13 | 2411 |
| HQ-ST | Taylor, W. W. | JOHNS HOPKINS UNIV | NSG 7055 | Krimigis, S. M. | 13 | 2292 |
| HQ-ST | Schmerling, E. R. | MASS INST OF TECH | NGL 22-009-015 | Bridge, H. S. | 13 | 2445 |
| HQ-ST | Schmerling, E. R. | PENN STATE U-UNIV PK | NGL 39-009-002 | Ross, W. J. | 13 | 3236 |
| HQ-ST | Schmerling, E. R. | PENN STATE U-UNIV PK | NGL 39-009-003 | Nisbet, J. S. | 13 | 3237 |
| HQ-ST | Schmerling, E. R. | PENN STATE U-UNIV PK | NGL 39-009-032 | Kendall, B. R. | 13 | 3240 |
| HQ-ST | Schmerling, E. R. | PENN STATE U-UNIV PK | NGR 39-009-218 | Hale, L. C. | 13 | 3245 |
| HQ-ST | Taylor, W. W. | POLY INST OF NY | NGR 33-006-047 | Gross, S. H. | 13 | 2960 |
| HQ-ST | Timothy, A. F. | PRINCETON UNIVERSITY | NSG 7088 | Schwartzchild, M. | 11 | 2789 |
| HQ-ST | Cauffman, D. P. | RICE UNIVERSITY | NGL 44-006-012 | Michel, F. C. | 13 | 3391 |
| HQ-ST | Cauffman, D. P. | RICE UNIVERSITY | NGR 44-006-137 | Dessler, A. J. | 13 | 3393 |
| HQ-ST | Williams, R. J. | RICE UNIVERSITY | NSG 7157 | Freeman, J. W., Jr. | 32 | 3399 |
| HQ-ST | Timothy, A. F. | SACRAMENTO CITY COL | NGR 05-084-002 | Vorpahl, J. A. | 11 | 1272 |
| HQ-ST | Schmerling, E. R. | STANFORD UNIVERSITY | NGL 05-020-008 | Helliwell, R. A. | 13 | 1381 |
| HQ-ST | Cauffman, D. P. | STANFORD UNIVERSITY | NGL 05-020-176 | Crawford, F. W. | 13 | 1385 |
| HQ-ST | Timothy, A. F. | STANFORD UNIVERSITY | NGL 05-020-272 | Sturrock, P. A. | 13 | 1388 |
| HQ-ST | Berko, F. W. | STANFORD UNIVERSITY | NGR 05-020-001 | Da Rosa, A. V. | 13 | 1393 |
| HQ-ST | Cauffman, D. P. | STANFORD UNIVERSITY | NGR 05-020-407 | Croft, T. A. | 19 | 1398 |
| HQ-ST | Timothy, A. F. | STANFORD UNIVERSITY | NSG 7092 | Jordan, T. H. | 11 | 1438 |
| HQ-ST | Timothy, A. F. | STANFORD UNIVERSITY | NSG 7099 | Walker, A. B., Jr. | 11 | 1439 |
| HQ-ST | Timothy, A. F. | STATE U NY-STONY BRK | NSG 7003 | Stroke, G. W. | 11 | 3021 |
| HQ-ST | Timothy, A. F. | UNIV ALA-HUNTSVILLE | NGR 01-008-015 | Rao, G. L. | 11 | 1066 |
| HQ-ST | Schmerling, E. R. | UNIV ALASKA-FAIRBNKS | NGR 02-001-087 | Davis, T. N. | 13 | 1090 |
| HQ-ST | Schmerling, E. R. | UNIV ALASKA-FAIRBNKS | NSG 7051 | Akasofu, S. I. | 13 | 1092 |
| HQ-ST | Cauffman, D. P. | UNIV OF ARIZONA | NGR 03-002-107 | Hsieh, K. C. | 13 | 1138 |
| HQ-ST | Cauffman, D. P. | UNIV OF ARIZONA | NSG 7024 | Sonett, C. P. | 13 | 1160 |
| HQ-ST | Timothy, A. F. | UNIV OF ARIZONA | NSG 7168 | Levy, E. H. | 13 | 1168 |
| HQ-ST | Schmerling, E. R. | UNIV CALIF-BERKELEY | NGL 05-003-017 | Anderson, K. A. | 19 | 1467 |
| HQ-ST | Timothy, A. F. | UNIV CALIF-BERKELEY | NGR 05-003-510 | Anderson, K. A. | 11 | 1485 |
| HQ-ST | Schmerling, E. R. | UNIV CALIF-DAVIS | NGR 05-004-006 | McIlwain, C. E. | 32 | 1526 |
| HQ-ST | Cauffman, D. P. | UNIV CALIF-L ANGELES | NGL 05-007-004 | Coleman, P. J., Jr. | 39 | 1555 |
| HQ-ST | Taylor, W. W. | UNIV CALIF-L ANGELES | NGL 05-007-190 | Kennel, C. F. | 19 | 1558 |
| HQ-ST | Cauffman, D. P. | UNIV CALIF-L ANGELES | NGR 05-007-276 | Holzer, R. E. | 13 | 1563 |
| HQ-ST | Timothy, A. F. | UNIV CALIF-L ANGELES | NSG 7158 | Ulrich, R. K. | 13 | 1588 |
| HQ-ST | Cauffman, D. P. | UNIV CALIF-L ANGELES | NSG 7180 | Siscoe, G. L. | 39 | 1590 |
| HQ-ST | Cauffman, D. P. | UNIV CALIF-SAN DIEGO | NGL 05-005-007 | McIlwain, C. E. | 13 | 1608 |
| HQ-ST | Taylor, W. W. | UNIV CALIF-SAN DIEGO | NGR 05-009-075 | Banks, P. M. | 13 | 1618 |
| HQ-ST | Cauffman, D. P. | UNIV CALIF-SAN DIEGO | NGR 05-009-076 | Fejer, J. A. | 13 | 1619 |
| HQ-ST | Schmerling, E. R. | UNIV CALIF-SAN DIEGO | NGR 05-009-081 | Axford, W. I. | 13 | 1620 |
| HQ-ST | Timothy, A. F. | UNIV CALIF-SAN DIEGO | NGR 05-009-226 | Penner, S. S. | 11 | 1628 |
| HQ-ST | Schmerling, E. R. | UNIV CALIF-SAN DIEGO | NSG 7001 | Doupnik, J. R. | 31 | 1639 |
| HQ-ST | Timothy, A. F. | UNIV CALIF-SAN DIEGO | NSG 7100 | Hudson, H. S. | 13 | 1641 |

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| HQ-ST | Timothy, A. F. | UNIV CALIF-SAN DIEGO | NSG 7161 | Peterson, L. E. | 13 | 1644 |
| HQ-ST | Timothy, A. F. | UNIV OF CHICAGO | NGR 14-001-164 | Blake, R. L. | 11 | 2066 |
| HQ-ST | Timothy, A. F. | UNIV COLORADO-BOLDR | NGL 06-003-057 | Cooper, J. | 13 | 1774 |
| HQ-ST | Timothy, A. F. | UNIV COLORADO-BOLDR | NGR 06-003-069 | Barth, C. A. | 11 | 1777 |
| HQ-ST | Timothy, A. F. | UNIV COLORADO-BOLDR | NSG 7130 | Bruner, E. C., Jr. | 13 | 1797 |
| HQ-ST | Timothy, A. F. | UNIV COLORADO-BOLDR | NSG 7165 | Barth, C. A. | 13 | 1798 |
| HQ-ST | Timothy, A. F. | UNIV COLORADO-BOLDR | NSG 7166 | Roberts, W. O. | 13 | 1799 |
| HQ-ST | Schmerling, E. R. | UNIV OF DENVER | NGR 06-004-058 | Patel, V. L. | 13 | 1809 |
| HQ-ST | Taylor, W. W. | UNIV OF DENVER | NGR 06-004-060 | Roederer, J. G. | 13 | 1810 |
| HQ-ST | Timothy, A. F. | UNIV OF HAWAII-MANOA | NGL 12-001-011 | Jefferies, J. T. | 11 | 2024 |
| HQ-ST | Cauffman, D. P. | UNIV HOUSTON-HOUSTON | NGR 44-005-133 | Sheldon, W. R. | 31 | 3468 |
| HQ-ST | Taylor, W. W. | UNIV OF IOWA | NGL 16-001-002 | Van Allen, J. A. | 13 | 2178 |
| HQ-ST | Cauffman, D. P. | UNIV OF IOWA | NGL 16-001-043 | Montgomery, D. C. | 13 | 2179 |
| HQ-ST | Cauffman, D. P. | UNIV MARYLAND-COL PK | NGL 21-002-005 | Wu, C. S. | 19 | 2319 |
| HQ-ST | Timothy, A. F. | UNIV MARYLAND-COL PK | NGR 21-002-007 | Wilkerson, T. D. | 11 | 2323 |
| HQ-ST | Cauffman, D. P. | UNIV MARYLAND-COL PK | NGR 21-002-386 | Matthews, D. L. | 11 | 2335 |
| HQ-ST | Timothy, A. F. | UNIV OF MASS-AMHERST | NGL 22-010-025 | Strong, J. | 11 | 2538 |
| HQ-ST | Timothy, A. F. | UNIV MICH-ANN ARBOR | NGL 23-005-275 | Mohler, O. C. | 11 | 2576 |
| HQ-ST | Cauffman, D. P. | UNIV MICH-ANN ARBOR | NGR 23-005-015 | Nagy, A. F. | 31 | 2577 |
| HQ-ST | Schmerling, E. R. | UNIV MICH-ANN ARBOR | NGR 23-005-320 | Samir, U. | 13 | 2579 |
| HQ-ST | Timothy, A. F. | UNIV MICH-ANN ARBOR | NGR 23-005-543 | Teske, R. G. | 11 | 2587 |
| HQ-ST | Schmerling, E. R. | UNIV MICH-ANN ARBOR | NSG 7137 | Donahue, T. M. | 11 | 2602 |
| HQ-ST | Cauffman, D. P. | U MINN-MNPLS-ST PAUL | NGL 24-005-008 | Winckler, J. R. | 13 | 2627 |
| HQ-ST | Schmerling, E. R. | U MINN-MNPLS-ST PAUL | NGR 24-005-253 | Cahill, L. J., Jr. | 13 | 2636 |
| HQ-ST | Cauffman, D. P. | U MINN-MNPLS-ST PAUL | NSG 7005 | Winckler, J. R. | 39 | 2645 |
| HQ-ST | Taylor, W. W. | U MINN-MNPLS-ST PAUL | NSG 7108 | Kellogg, P. J. | 19 | 2646 |
| HQ-ST | Cauffman, D. P. | U MINN-MNPLS-ST PAUL | NSG 7237 | Cahill, L. J., Jr. | 19 | 2648 |
| HQ-ST | Hunter, W. R. | UNIV NEW HAMP-DURHAM | NGL 30-002-018 | Chupp, E. L. | 13 | 2740 |
| HQ-ST | Schmerling, E. R. | UNIV NEW HAMP-DURHAM | NGR 30-002-054 | Arnoldy, R. L. | 13 | 2743 |
| HQ-ST | Timothy, A. F. | UNIV NEW HAMP-DURHAM | NGR 30-002-104 | Chupp, E. L. | 13 | 2744 |
| HQ-ST | Cauffman, D. P. | UNIV OF SOUTHERN CAL | NGR 05-018-181 | Vasyliunas, V. M. | 13 | 1715 |
| HQ-ST | Timothy, A. F. | UNIV TENNESSEE-KNOXV | NSG 7049 | Sellin, I. A. | 11 | 3349 |
| HQ-ST | Timothy, A. F. | UNIV TEXAS-AUSTIN | NGR 44-012-258 | Bengtson, P. D. | 11 | 3502 |
| HQ-ST | Cauffman, D. P. | UNIV TEXAS-DALLAS | NGR 44-004-030 | Heikkila, W. J. | 13 | 3531 |
| HQ-ST | Taylor, W. W. | UNIV TEXAS-DALLAS | NGR 44-004-120 | Hanson, W. B. | 31 | 3532 |
| HQ-ST | Schmerling, E. R. | UNIV TEXAS-DALLAS | NGR 44-004-142 | Tinsley, B. A. | 19 | 3535 |
| HQ-ST | Schmerling, E. R. | UNIV TEXAS-DALLAS | NGR 44-004-150 | Heikkila, W. J. | 31 | 3536 |
| HQ-ST | Schmerling, E. R. | UNIV TEXAS-DALLAS | NSG 7107 | Hoffman, J. H. | 31 | 3540 |
| HQ-ST | Schmerling, E. R. | UNIV TEXAS-DALLAS | NSR 44-004-041 | Heikkita, W. J. | 13 | 3541 |
| HQ-ST | Schmerling, E. R. | UNIV OF WASHINGTON | NGR 48-002-154 | Parks, G. K. | 13 | 3756 |
| HQ-ST | Cauffman, D. P. | UNIV WISC-MADISON | NGR 50-002-162 | Scherb, F. | 13 | 3793 |
| HQ-ST | Schmerling, E. R. | WASHINGTON UNIVERSTY | NGL 26-008-057 | Abrahamshrauner, B. | 13 | 2710 |
| HQ-SU | King, J., Jr. | STATE UNIV NY-ALBANY | NSG 7222 | Kiang, C. S. | 31 | 2994 |
| HQ-SU | King, J., Jr. | STATE UNIV NY-ALBANY | NSG 7230 | Weinberg, J. L. | 31 | 2995 |
| HQ-SU | Reed, E. F. | UNIV CALIF-IRVINE | NSG 7208 | Molina, M. J. | 31 | 1530 |
| HQ-SU | King, J., Jr. | UNIV COLORADO-BOLDR | NSG 7224 | London, J. | 31 | 1800 |
| HQ-SU | King, J., Jr. | UNIV COLORADO-BOLDR | NSG 7231 | Thomas, R. J. | 31 | 1801 |
| HQ-SU | King, J., Jr. | UNIV ILLINOIS-URBANA | W-14133 | Unavailable | 31 | 2097 |
| HQ-SU | King, J., Jr. | UNIV MICH-ANN ARBOR | NSG 7187 | Cicerone, R. J. | 12 | 2603 |
| HQ-SU | King, J., Jr. | UNIV MICH-ANN ARBOR | NSG 7209 | Donahue, T. M. | 31 | 2604 |
| HQ-SU | King, J., Jr. | U MINN-MNPLS-ST PAUL | NSG 7221 | Mauersberger, K. | 31 | 2647 |
| HQ-SU | King, J., Jr. | UNIV OF WYOMING | NSG 7207 | Hofmann, D. J. | 31 | 3813 |
| HQ-SU | King, J., Jr. | UTAH STATE UNIV | NSG 7206 | Moore, W. M. | 12 | 3577 |
| HQ-SU | King, J., Jr. | UTAH STATE UNIV | NSG 7210 | Baker, K. D. | 31 | 3578 |
| HQ-SU | King, J., Jr. | WASHINGTON ST UNIV | NSG 7214 | Rasmussen, R. A. | 31 | 3765 |
| HQ-U | Monroe, R. | HOWARD UNIVERSITY | NASW 2906 | Unavailable | 99 | 1877 |
| HQ-U | Monroe, R. | NEW MEX ST U-LAS CR | NASW 2928 | Alba, A. | 41 | 2806 |
| HQ-U | Dixon, J. T. | SHAW UNIVERSITY | NASW 2793 | Unavailable | 99 | 3072 |

NASA'S UNIVERSITY PROGRAM

APPENDIX C CROSS INDEX BY TECHNICAL OFFICER LOCATION

| TECH OFF LOC | TECHNICAL OFFICER | INSTITUTION | GRANT/ CONTRACT NUMBER | FIRST PRINCIPAL INVESTIGATOR | FIELD CODE | ACC NO. |
|--------------------|----------------------|----------------------|------------------------------|---------------------------------|---------------|------------|
| HQ | Poppa, H. R. | UNIV CALIF-BERKELEY | NCA 2-50605 | Everhart, T. E. | 47 | 1463 |
| HQ | Ericson, E. F. | UNIV CALIF-BERKELEY | NCA 2-50606 | Gaustad, J. | 11 | 1464 |
| HQ | Pollack, J. B. | UNIV CALIF-DAVIS | NCA 2-180605 | White, B. R. | 32 | 1523 |
| HQ | Unavailable | UNIV CALIF-L ANGELES | C-80166C | Unavailable | 47 | 1531 |